MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

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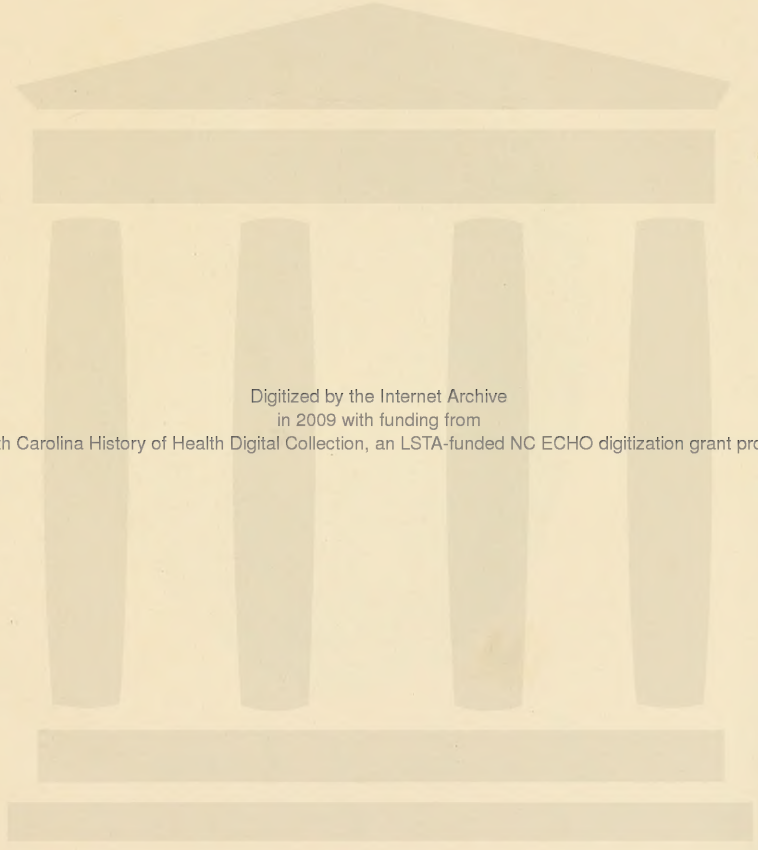

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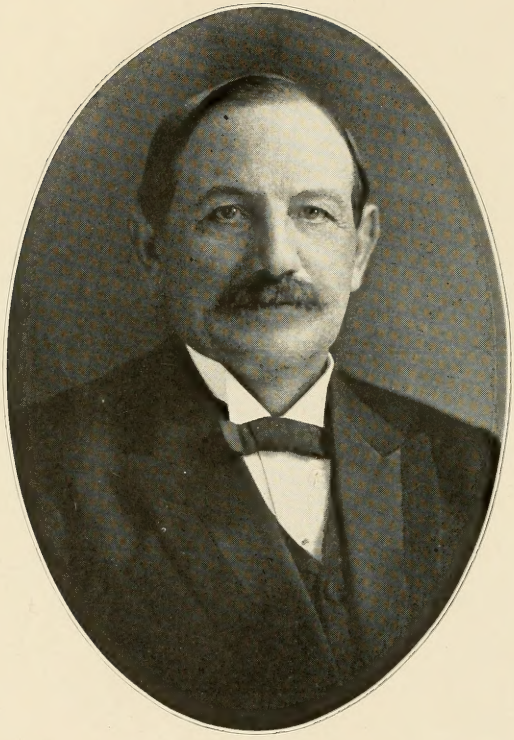

Sincerely Yours,

H. B. Keener.

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

FIFTY-FIRST ANNUAL MEETING

HELD AT

RALEIGH, N. C., MAY 24, 25 AND 26, 1904.

PRESIDENT, DR. HENRY BASCOM WEAVER, ASHEVILLE, N. C.
SECRETARY, DR. J. HOWELL WAY, WAYNESVILLE, N. C.

RALEIGH
PRESSES OF EDWARDS & BROUGHTON
1905

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Publication Committee.

Dr. J. Howell Way.....Waynesville.
Dr. Geo. W. Pressly.....Charlotte.
Dr. H. McKee Tucker.....Raleigh.

"It is to be understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the transactions of the Society."—*Extract from By-Laws, Chap. 10, Sec. 8.*

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1904

	Date.	Place.	President.	Vice-Presidents.	Secretary.	Treasurer.
	1849	Raleigh	F. J. Hill		W. H. McKee	
1	1850	Raleigh	Edmund Strudwick	F. J. Haywood, C. E. Johnson, J. E. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill.
2	1851	Raleigh	Edmund Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill.
3	1852	Wilmington	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker.
4	1853	Fayetteville	J. E. Williamson	W. G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree.
5	1854	Raleigh	J. H. Dickson	N. J. Pittman, J. G. B. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree.
6	1855	Salisbury	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn.
7	1856	Raleigh	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn.
8	1857	Edenton	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn.
9	1858	New Bern	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn.
10	1859	Statesville	W. H. McKee	James G. Ramsay, P. E. Hines, J. R. Mercer, W. T Howard.	W. G. Thomas	C. W. Graham.
11	1860	Washington	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham.
12	1861	Morganton	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham.
13	1866	Raleigh	J. J. Summerell		W. G. Thomas	C. W. Graham.
14	1867	Tarboro	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham.
15	1868	Warrenton	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H Baker.	Thos. F. Wood	J. W. Jones.
16	1869	Salisbury	E. Burke Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thos. F. Wood	J. W. Jones.
17	1870	Wilmington	C. J. O'Hagan	E. A. Anderson, F. N. Luckey, W. R. Sharpe, R. L. Payne.	Thos. F. Wood.	J. W. Jones.
18	1871	Raleigh	Hugh Kelly	D. N. Patterson, R. C. Pearson. J. B. Seavy, G. L. Kirby.	Thos. F. Wood	J. W. Jones.
19	1872	New Bern	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	Jas. McKee	J. W. Jones.

20	1873	Statesville	M. Whitehead	W. T. Ennett, William Little, Chas. Duffy, T. P. German.	Jas. McKee	H. T. Bahnson.
21	1874	Charlotte	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	Jas. McKee	H. T. Bahnson.
22	1875	Wilson	J. W. Jones	Walter Debnam, J. A. Gibon, Wm. Little, D. N. Patterson.	Jas. McKee	H. T. Bahnson.
23	1876	Fayetteville	Peter E. Hines	Jos. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	Jas. McKee	H. T. Bahnson.
24	1877	Salem	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	Jas. McKee	A. G. Carr.
25	1878	Goldsboro	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot	A. G. Carr.
26	1879	Greensboro	Charles Duffy, Jr	J. A. Gibson, Willis Allston, Jas. McKee, A. A. Hill.	L. J. Picot	A. G. Carr.
27	1880	Wilmington	J. F. Shaffer	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr.
28	1881	Asheville	R. B. Haywood	J. A. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr.
29	1882	Concord	Thomas F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr.
30	1883	Tarboro	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr.
31	1884	Raleigh	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr.
32	1885	Durham	W. C. McDuffie	Jas. McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.
33	1886	New Bern	Joseph Graham	H. T Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.
34	1887	Charlotte	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.
35	1888	Fayetteville	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker	C. M. Poole.
36	1889	Elizabeth City	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long.	J. M. Baker	C. M. Poole.
37	1890	Oxford	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. W. Booth.	J. M. Hays	C. M. Poole.
38	1891	Asheville	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays	C. M. Poole.
39	1892	Wilmington	W. T. Cheatham	T. S. Burbank, J. W. Long. W. H. H. Cobb, W. D. Hillard.	J. M. Hays	C. M. Poole.
40	1893	Raleigh	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thos. Hill.	R. D. Jewett	M. P. Perry.
41	1894	Greensboro	W. H. H. Cobb	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry.

ROSTER OF OFFICERS OF THE NORTH CAROLINA MEDICAL SOCIETY—CONTINUED.

	Date.	Place.	President.	Vice-Presidents.	Secretary.	Treasurer.
42	1895	Goldsboro	J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry.
43	1896	Winston-Salem	R. L. Payne	S. D. Booth, J. P. Monroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry.
44	1897	Morehead City	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry.
45	1898	Charlotte	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry.
46	1899	Asheville	L. J. Picott.	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	Geo. W. Pressly	G. T. Sikes.
47	1900	Tarboro	George W. Long	C. M. Poole, James M. Parrott, T. B. Williams, W. D. Hilliard.	Geo. W. Pressly	G. T. Sikes.
48	1901	Durham	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	Geo. W. Pressly	G. T. Sikes.
49	1902	Wilmington	Robert S. Young	A. G. Carr, E. D. Dixon Carroll, I. M. Taylor, J. M. Parrott.	Geo. W. Pressly	G. T. Sikes.
50	1903	Hot Springs	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes.
51	1904	Raleigh	H. B. Weaver	Jno. Hey Williams, Jno. C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes.

PAST MEMBERS BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

Name and Post-office.	Date.
*JAMES H. DICKSON, Wilmington	1859-1866
*Charles E. Johnson, Raleigh	1859-1866
*Caleb Winslow, Hertford	1859-1866
*Otis F. Manson, Townsville	1859-1866
*Wm. H. McKee, Raleigh	1859-1866
*Christopher Happoldt, Morganton	1859-1866
*J. Graham Tull, New Bern	1859-1866
*SAMUEL T. IREDELL, Secretary	1859-1866
*N. J. PITTMAN, Tarboro	1866-1872
*E. Burke Haywood, Raleigh	1866 1872
*R. H. Winborne, Edenton	1866-1872
*S. S. Satchwell, Rocky Point	1866-1872
*J. J. Summerell, Salisbury	1866-1872
*R. B. Haywood, Raleigh	1866-1872
*M. Whitehead, Salisbury	1866-1868
J. F. Shaffner, Salem	1868-1872
*WM. LITTLE, Secretary	1866 1872
*CHAS. J. O'HAGAN, Greenville	1872-1878
*W. A. B. Norcom, Edenton	1872-1878
*C. Tate Murphy	1872-1878
*George A. Foote, Warrenton	1872-1878
*J. W. Jones, Tarboro	1872-1878
*R. L. Payne, Lexington	1872-1878
CHAS. DUFFY, JR., New Bern	1872-1878
P. E. HINES, Raleigh	1878-1884
T. D. Haigh, Fayetteville	1878-1884
*R. I. Hicks, Williamsboro	1878-1880
*Geo. L. Kirby, Goldsboro	1878-1884
*Thos. F. Wood, Wilmington	1878-1884
Jos. Graham, Charlotte	1878-1884
H. T. BAHNSON, Salem	1878-1884
R. H. Lewis, Raleigh	1880-1884
*WM. R. WOOD, Scotland Neck	1884-1890
A. W. Knox, Raleigh	1884-1890
Francis Duffy, New Bern	1884-1890
P. L. Murphy, Morganton	1884-1890
Willis Alston, Littleton	1884-1890
W. J. H. BELLAMY, Wilmington	1884-1890
J. A. Reagan, Weaverville	1884-1890
R. L. Payne, Jr., Norfolk, Va	1890-1892
Geo. W. Purefoy, Asheville	1890-1892
Geo. G. Thomas, Wilmington	1890-1894
Robert S. Young, Concord	1890-1894
George W. Long, Graham	1890-1896
W. H. WHITEHEAD, Rocky Mount	1890-1896
L. J. PICOT, Littleton	1890-1896
JULIAN M. BAKER, Tarboro	1892-1898
H. B. Weaver, Asheville	1892-1898
†T. S. Burbank, Wilmington	1894-1898
*J. M. Hays, Greensboro	1894-1897
D. T. TAYLOE, Washington	1896-1902
†R. H. Whitehead, Chapel Hill	1896-1897
THOS. E. ANDERSON, Statesville	1896-1902
Kemp P. Battle, Raleigh	1897-1900
J. HOWELL WAY, Waynesville	1897-1902
W. H. H. Cobb, Goldsboro	1898-1900
Albert Anderson, Wilson	1898-1902
E. C. REGISTER, Charlotte	1898-1902
Thos. S. McMullan, Hertford	1900-1902
John C. Walton, Danville, Va	1900-1902

* Dec'd. † Resigned.

NOTE—The names of members who served as President appear in CAPS; of those who served as Secretary in SMALL CAPS.

BOARD OF MEDICAL EXAMINERS 1902–1908.

CHAS. O'H. LAUGHINGHOUSE, President, Greenville, Obstetrics and Gynæcology.
GEO. W. PRESSLY, Secretary, Charlotte, Chemistry and Pharmacy.
M. H. FLETCHER, Asheville, Physiology and Hygiene.
JAMES M. PARROTT, Kinston, Anatomy and Histology.
A. A. KENT, Lenoir, Practice of Medicine.
J. T. J. BATTLE, Greensboro, Materia Medica and Therapeutics.
FRANK H. RUSSELL, Wilmington, Surgery.

Officers and Committees—1904.

President—Dr. HENRY BASCOM WEAVER.....Asheville
First Vice-President—Dr. JOHN HEY WILLIAMS.....Asheville
Second Vice-President—Dr. JOHN C. RODMAN.....Washington
Third Vice-President—Dr. S. F. PFOHL.....Winston
Secretary—Dr. J. HOWELL WAY.....Waynesville
Treasurer—Dr. GEO. T. SIKES.....Grissom

Council.

First District—Dr. Oscar McMullan, Elizabeth City.
Second District—Dr. David T. Tayloe, President, Washington.
Third District—Dr. Frank H. Russell, Wilmington.
Fourth District—Dr. Albert Anderson, Wilson.
Fifth District—Dr. J. F. Highsmith, Fayetteville.
Sixth District—Dr. Hubert A. Royster, Secretary, Raleigh.
Seventh District—Dr. Edward C. Register, Charlotte.
Eighth District—Dr. H. S. Lott, Winston.
Ninth District—Dr. Thos. E. Anderson, Statesville.
Tenth District.—Dr. James A. Burroughs, Asheville.

Delegates to American Medical Association—Drs. J. Howell Way, Waynesville; Albert Anderson, Wilson.

Committee on Public Policy and Legislation—Drs. R. H. Lewis, Raleigh; P. L. Murphy, Morganton; George G. Thomas, Wilmington; H. B. Weaver, Asheville; J. Howell Way, Waynesville.

Committee on Publication—Drs. J. Howell Way, Waynesville; H. McKee Tucker, Raleigh; George W. Pressly, Charlotte.

Committee on Obituaries—Drs. C. M. Poole, Craven; H. H. Harris, Wake Forest; K. P. Battle, Jr., Raleigh.

Committee on Finance—Drs. James A. Burroughs, Asheville; T. E. Anderson, Statesville; Frank Duffy, New Bern.

Member of Committee of Arrangements for Session 1904—Dr. H. A. Royster, of Raleigh.

Orator—Dr. C. A. Julian, of Thomasville.
Essayist—Dr. J. G. Blount, of Washington.
Leader of Debate—Dr. J. A. Williams, of Reidsville.

Officers and Committees—1905.

President—Dr. DAVID T. TAYLOE.....Washington.
First Vice-President—Dr. C. A. JULIAN.....Thomasville.
Second Vice-President—Dr. JOHN T. BURRUS.....High Point.
Third Vice-President—Dr. I. W. FAISON.....Charlotte.
Secretary—Dr. J. HOWELL WAY.....Waynesville.
Treasurer—Dr. GINNADA T. SIKES.....Grissom.

Council.

President—Dr. Edward C. Register, Charlotte.
Secretary—Dr. Hubert A. Royster, Raleigh.
First District—Dr. Oscar McMullan, Elizabeth City.
**Second District*—Dr. Jas. M. Parrott, Kinston.
Third District—Dr. Frank H. Russell, Wilmington.
Fourth District—Dr. Albert Anderson, Wilson.
Fifth District—Dr. Jacob F. Highsmith, Fayetteville.
Sixth District—Dr. Hubert A. Royster, Raleigh.
Seventh District—Dr. Edward C. Register, Charlotte.
Eighth District—Dr. David A. Stanton, High Point.
Ninth District—Dr. Thomas E. Anderson, Statesville.
Tenth District—Dr. James A. Burroughs, Asheville.

Orator—Dr. Chase P. Ambler, Asheville.
Essayist—Dr. John Hill Tucker, Henderson.
Leader of Debate—Dr. E. T. Dickenson, Wilson.

Members House of Delegates American Medical Association—Drs. J. Howell Way, Waynesville; Albert Anderson, Wilson.

Committee on Public Policy and Legislation—Drs. R. H. Lewis, Raleigh; George G. Thomas, Wilmington; George W. Long, Graham; and *ex-officio*, Drs. D. T. Tayloe, Washington; J. Howell Way, Waynesville.

Committee on Publication—Drs. J. Howell Way, Waynesville; George W. Pressly, Charlotte; H. McKee Tucker, Raleigh.

Committee on Finance—Drs. James A. Burroughs, Asheville; Thomas E. Anderson, Statesville; Frank Duffy, New Bern.

Committee on Obituaries—Drs. C. M. Poole, Craven; H. H. Harris, Wake Forest; K. P. Battle, Jr., Raleigh.

Committee on Scientific Work—Drs. R. H. Whitehead, Chapel Hill; D. J. Hill, Lexington; J. Howell Way, Waynesville.

Local Member Committee Arrangements for Session 1905—Dr. Charles Roberson, Greensboro.

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*Dr. S. S Daniels, of Winton, was elected Councillor for the Second District by the House of Delegates, but after his death a few weeks later the Council elected Dr. Parrott to succeed him for the unexpired term.

Chairmen of Sections.

Anatomy and Surgery—Dr. J. P. Munroe, Munroe.
Materia Medica and Therapeutics—Dr. R. A. Whittaker, Kinston.
Practice of Medicine—Dr. W. H. Cobb, Jr., Goldsboro.
Physiology and Chemistry—Dr. Lynn McIver, Sanford.
Obstetrics—Dr. Thomas Stringfield, Waynesville.
Gynecology—Dr. W. P. Whittington, Asheville.
Medical Jurisprudence and State Medicine—Dr. E. M. Brown, Washington.
Pathology and Microscopy—Dr. William DeB. MacNider, Raleigh.
Railway Surgery—Dr. D. A. Stanton, High Point.

Delegates to Virginia Medical Society—Dr. James A. Burroughs, Asheville; Dr. S. D. Booth, Oxford; Dr. H. W. Lewis, Jackson.
Delegates to South Carolina Medical Society—A. J. Crowell, Charlotte; W. J. McAnally, Madison; C. L. Pridgeon, Kinston.
Delegates to Mississippi Valley Medical Association—Dr. H. B. Weaver, Asheville; Dr. M. H. Fletcher, Asheville; Dr. D. A. Stanton, High Point; Dr. James A. Burroughs, Asheville.

The Board of Medical Examiners of the State of North Carolina, 1902-'8—C. O'H. Laughinghouse, M.D., President, Greenville, Obstetrics and Gynecology; M. H. Fletcher, M.D., Asheville, Physiology and Hygiene; Frank H. Russell, M.D., Wilmington, Surgery; James M. Parrott, M.D., Kinston, Anatomy and Histology; A. A. Kent, M.D., Lenoir, Practice of Medicine; J. T. J. Battle, M.D., Greensboro, Materia Medica and Therapeutics; George W. Pressly, M.D., Secretary, Charlotte, Chemistry and Pharmacy.

The North Carolina State Board of Health—George G. Thomas, M.D., President, Wilmington; S. Westray Battle, M.D., Asheville; Henry W. Lewis, M.D., Jackson; J. L. Nicholson, M.D., Richlands; W. P. Ivey, M.D., Lenoir; Francis Duffy, M.D., New Bern; W. H. Whitehead, M.D., Rocky Mount; J. L. Ludlow, C.E., Winston-Salem; Richard H. Lewis, M.D., Secretary and Treasurer, Raleigh.

*The fifty-second annual session of the Society will be held in Greensboro, May, 1905. The officers of the Society, especially invite the active co-operation of the President and Secretaries of County Societies, with the Committee on Scientific Work, that an attractive programme and a full attendance be secured.

MINUTES

OF THE

FIFTY-FIRST ANNUAL SESSION

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

HELD IN

RALEIGH, N. C.,

May 24, 25 and 26, 1904.

GENERAL MEETING.

RALEIGH, N. C., May 24, 1904.

The Medical Society of the State of North Carolina was called to order in fifty-first regular annual session in Hall of the House of Representatives in the Capitol Building at 10 a. m. by Dr. Hubert A. Royster, Chairman of the Committee of Arrangements, who introduced Rev. Dr. Moment of the Presbyterian church, who delivered the following invocation:

Oh, Lord, our God, our Divine Father, our Creator, our Preserver and our Bountiful Benefactor, in all things we would acknowledge Thee. We invoke Thy blessing to rest upon this assembly. Upon every individual heart and mind; upon the work which they have come here to transact; upon all that shall enter into their deliberations. We ask that Thy spirit be granted them, that every thing may be done to the praise of Thy great name, to the forwarding of the interests that they represent, together with those of this State and of mankind in general; for the uplifting of all that is good and true and noble; for the advancement of Thy Kingdom of Righteousness. We pray for Thy special providence to attend each individual member of this Association. Preserve their health, their strength, their life. Keep them from all accident, from anything whatsoever that may harm them. Keep the beloved ones whom they have left behind—their wives, their children, their friends, their neighbors

and their patients. God be with those who shall preside over this assembly. We commit all to Thy care and to Thy keeping. May our sins be pardoned. May everything be wiped away from us that defiles us and may Thy great name forevermore be honored and glorified. Amen.

Dr. Moment having concluded, Dr. H. A. Royster said:

I now have the honor of introducing to you a man who needs no introduction and who has kindly consented, in the absence of our eloquent Governor, to take his place. If there is any man in North Carolina who can take everybody's place, it is Dr. Dixon. Having come in touch with all sides of life—as a statesman, as a soldier, as a minister and as a physician—he is, above all other men, best qualified to speak to doctors.

Dr. Dixon's address:

Mr President and Gentlemen of the Medical Convention of North Carolina:

It is with sincere pride and pleasure that I have the distinguished honor of standing this morning in the place of his Excellency, Governor Aycock, and of welcoming to the capital of North Carolina this great body of great men who have so much to do in determining the destinies of our people.

Not long ago a physician in the city of New York was called upon to respond to the toast, "Our Doctors: They Lead to a Brighter World and Show the Way." This was intended for a joke upon the profession, but I think that it was an appropriate toast, for I stand here to-day to say that doctors do lead to brighter worlds and show the way. Do not misunderstand me, I am not talking of that world that lies beyond the setting sun. But what world can be so dark and dreary as the world in which a sick man lives? And when a doctor leads him out of that wretched world into the bright and beautiful world of health, out of the darkened chamber of sickness into God's sunlight, where the roses bloom and the mocking bird sings, he has shown to that man the way to a heaven upon earth, and in this way the doctor leads to brighter worlds.

I wish to congratulate you upon the marvellous progress which has been made by your great profession within the last generation. A few decades past the sign over the office of many physicians should have been similar to the quaint and curious one which Isaac Letsum placed over his door when he wrote—

"If any sick to me apply,
I physics, bleeds and sweats 'em;
If after that they choose to die,
What's that to me? I. Letsum."

But now old things have passed away, and all things have become new, and physicians of to-day are familiar with facts in all departments of medicine and surgery, which a generation ago were supposed to be known only to the Angels of God. Vast improvements have been made in all departments of human activity, but I honestly believe that your profession has outstripped them all in the great benefits which have come to the human race by reason of progress, and I honestly believe that the medical profession of no State in the American Union has made more rapid development than that which has been made by the doctors of North Carolina. This has been brought about by the determination on the part of many of the ablest physicians of the State to raise the standard of medicine in North Carolina. All honor to those brave, devoted men who held the flag of the medical profession in the heavens amid the thunderous uproar of opposition and revolt, until all men flocked to it. As a lover of my State and my people, I beg you to hold it higher still until all men everywhere shall give to your noble profession the honor and the glory it so richly deserves. For, believe me, the man who gives his life that humanity might not suffer pain, the man who goes to the cabin of the poor as well as to the home of the rich, and with his kindly aid soothes the brow of suffering like an Angel's wing, is as near to those who dwell in the Mansions of God as any man on earth can be.

See that all men honor your profession and you honor it yourself. When Sir Astley Cooper was called upon to minister to the bloated limbs of King George the Fourth it was the King who was honored and not that great surgeon. When you are called upon to cross the threshold of the money king, if you do not know that your profession is nobler than his mansion, then the grinning negro who lets you in is your fitting companion. "The father of your profession stood with kings as their equal, but the Barber-Surgeon's Hall is still standing in London. You can hold yourselves fit for the palaces of princes or you can crawl back to the Barber-Surgeon's Hall just as you like." But the man who practices the art of healing in order to relieve the suffering of humanity is one of the world's greatest men, but he who practices only for the money he may get out of it deserves the contempt of every true physician in the land. If you honor your art as you should, you will honor all honorable practitioners in your honored calling, and will beware of all degrading jealousies and unfair advantages which promise to raise you at the expense of a rival. You will pardon me, I know, if I give you a new commandment—one which is peculiarly appropriate to physicians—and that commandment says: "Thou shalt not covet thy neighbor's patients."

And now, Mr. President and Gentlemen, I am perfectly certain

that you are already satisfied that I am not afflicted like the dyspeptic old woman, who, after consulting her physician, said: "The doctor told me that my real difficulty was that I had not sufficient gall to justify my victuals." I certainly have had a superabundance of gall to presume to talk to you as I have, but having been in active practice myself for twenty years, I know you will excuse me. And then you know once medicinal doctor always doctor medicinal. You can unfrock a minister, you can debar a lawyer and you can even unwed a husband, but you can never put off the title of doctor—once a doctor always a doctor.

Again, I welcome you in behalf of this great State to her Capitol building, and to everything—they are yours—and I trust your stay with us may be profitable to you, and that your pleasure here may be so great that you will tarry long enough to allow at least some of your patients to get well in your absence.

Dr. Dixon concluding, Dr. H. A. Royster said:

It now becomes my pleasant duty to introduce to you one of Raleigh's distinguished citizens who will welcome you on behalf of the city, Hon. Ed. Chambers Smith, who is noted as a lawyer, a business man and all-'round social gentleman, will now tell you that the city of Raleigh is glad to see you.

Mr. E. Chambers Smith.

Mr. President, Ladies and Gentlemen of the Medical Society of North Carolina (I believe there are some lady members now):

Some time ago there met in this city a convention of undertakers and a young friend of mine had the temerity to deliver an address of welcome to them. I thought, when asked to deliver this address, that I could, with pleasure, welcome to the city those men who stand between me and the undertakers, and it is with real sincere pleasure that I give you this cordial welcome to our town.

Some time ago old Zack Chandler, while serving in the Senate of the United States, in reply to some one who was deploring the fact that the South had not taken its former stand in the great legislative halls of the country, said that he had found that when the prodigal son was invited to come back he came, and came in full force. We killed the fatted calf, he said, and invited them to partake, and they ate the calf, and ate it all. We had dancing and music and song and they had not been there long before they had charge of it all—were leading the dancing and calling the figures.

Now, we want you to come and take charge of everything in the city of Raleigh. Take whatever you see and call for what you do not see. Take absolute charge of everything we have. Anything we can do for your pleasure we will gladly do.

Again, gentlemen, I welcome you to our city.

Dr. Royster then, in behalf of the Society, introduced Dr. J. M. Parrott, of Kinston, who spoke as follows:

It has seldom been the good fortune of the State Medical Society to be welcomed so heartily and so eloquently as we have been today. The physicians of our State feel highly honored that Mr. Smith and Dr. Dixon should consent to attend our opening session and participate in our exercises. We are encouraged by this act, because it tells us more forcibly than words can express that the thinking men of our country are with us in our work and bid us godspeed in all our professional undertakings.

It is said that on one occasion, while going by boat from one point on the Italian coast to another, Julius Cæsar was overtaken by a great storm. The wind raged with the fiercest fury, heaven's artillery roared and thundered, while the waves, as though maddened, dashed with unrelenting violence against the frail bark on which the great Roman had taken passage. When the storm reached its height and it seemed all must surely be lost, an old seaman arose in the midst of his trembling, panic-stricken comrades, and said: "Men, why are you afraid? Do you not know that we can not sink since we have on board the great Cæsar himself?"

My friends, during the past several years the people of North Carolina have felt secure and safe. Whenever the storms incident to life have threatened us, whenever danger from any source has arisen before us, when the clouds of ignorance have threatened to break in a storm around us we have awaited the outcome in confidence, because we have believed that we could not sin since we had on board such men as Dr. Dixon and Ed. Chambers Smith.

For twelve months the eyes of the medical profession have been turned towards Raleigh. We have anticipated the visit with much pleasure. We are truly glad and delighted that the time and occasion have arrived for us to partake of your hospitality. To be here is not only a pleasure, but an inspiration as well. Since the earliest dawn of her proud history Raleigh has been, to a great extent, to North Carolina, as a light set upon a hill—something of a guiding star. Her educational facilities are not excelled by any city in the South. The assistance she has rendered the poor unfortunates whom the State, in its tender ministerings has gathered here, is worthy of the highest praise. Her industrial development is an example which all would do well to follow. Though at the close of the civil war her houses were in ruins and her men once rich were poverty stricken, she mustered her old-time courage, and with a determination which passes all understanding, went forth to meet the shadowy future with a stout heart and a steadfast hope. How well she has been rewarded for her work the magnificence of her

public improvements and the prosperity of her people bespeak. The music of her spindles, the din of her factory whistles, mingling with the roar of her trains dashing in and out all the livelong day and throughout the lonely night, is sweet harmony to the ear of every North Carolinian, and is heard with delight from one end of the State to the other. With the hearing our people have gathered strength and hope. They have been aroused and have bestirred themselves. The State has thrown off its seeming lethargy. We are no longer the Rip Van Winkles of the Union. North Carolina is now a veritable bee hive. Every man who seeks honorable employment at a profitable price finds it and peace and plenty have been scattered over this smiling land. Thank God that in North Carolina, and here in Raleigh in particular, we have held on with one hand to that old-time Southern civilization in which virtue, chivalry, hospitality, respect for women, love of home and the hungering of the soul for individual freedom reigned supreme, while with the other we have reached out and grasped the hustle and push for commercial supremacy, which is dominating the lives of many men in adjoining States, and have brought the two together here, harmonizing one with the other, and have produced, as a result, an ideal twentieth century civilization.

You are a busy people, but your time has not been so fully occupied that you have been compelled to neglect the poor and needy. You have, without doubt, learned the lesson of the Good Samaritan in the broadest sense. Your numerous charitable organizations emphasize the fact that you have accepted long ago, and in a practical manner, the Divine injunction that you are your brother's keeper. Your splendidly-equipped City Dispensary, and hospitals for both races, attended by your most distinguished physicians, not only makes Raleigh a medical center, but they stand to-day a lasting monument, more enduring than marble, to your charity and philanthropy.

We love to visit Raleigh, because we know you appreciate our worth and sympathize with us in our work. We know you love and respect your factors, and you of a right should, for you are, as your family physicians, with some of the brightest and most distinguished men who have ever adorned the medical profession. No man can estimate the value of the services of the medical man. With characteristic generosity and love of mankind the doctor has labored since the beginning of civilization to eradicate disease, to destroy his own business for the common good. Without his advice and knowledge—and they given almost gratuitously—disease would sweep over the entire world almost in a flash. Under the present trade condition were it not for medical science cholera would rage in North Carolina in eight weeks, and yellow-fever would invade our beautiful Southland and literally wipe our great

cities from the face of the earth in an incredidbly short time. It has rendered diphtheria almost harmless and robbed small-pox of nearly all its terrors. It has hurled its battalions against the plague and a score of other diseases which annihilated whole cities in the past, and in civilized countries they have surrendered. It has assailed typhoid-fever, blood poison, malaria, fever, tuberculosis, and they are to-day rapidly retreating before its advancing columns. Typhus-fever, leprosy, scurvy and a half dozen ancient diseases are now known only to students of medical history.

If we but had the unqualified endorsement of the public or of the leaders, within thirty years we could render inert or practically destroy all of the thirty-one transmissible diseases, thus saving to the people of the United States annually in cash alone more than the tax valuation of all property, both real and personal, in North Carolina. No honorable member of the profession has ever patented for personal gain or self-aggrandizement any medicine, apparatus or procedure by which humanity may be benefited. When an improved technique is worked out, or a new medicine is discovered, no one publishes it for the benefit of mankind quicker than the doctor. He has laid upon the public altar his hypodermic syringes, his anesthetics, his vaccine, his anti-toxins, his great scientific bacteriological work, without which modern civilization would be impossible, and said to the suffering disease-stricken world, "I give it all to thee; like salvation, "tis full and free."

No trust has ever been formed by the medical profession for its own advancement. The doctor has never monopolized one thing, save exposure to the elements of nature and the diseases of man, unless it be the heartaches and pangs of sorrow which fall upon the hearthstones of the community where the loved ones of his patrons dwell.

My friends, the practice of medicine is the most important and weighty business—except, perhaps, the ministry, and its shares equally with it—in which man has ever engaged. Neither Washington, when facing annihilation by starvation and cold winter's blast at Valley Forge, or Lee, when retreating from Richmond and Petersburg with the remnants of the grandest army of heroes the world has ever seen, neither of them—though on a larger scale—ever faced a more serious problem than that which confronts the medical man when he enters the sick chamber to do battle in a hand-to-hand conflict with the common enemy of humanity, striving to drive death from the door and restore to the pale cheeks of the sufferer the red rose of health. Regardless of the weather the doctor goes forth at night to rescue the dying. In storm or calm he works the livelong day, fighting often against fearful odds, not for his own altars, but for those of others. He gives of his best alike to the rich and

the poor, never discriminating, often with little or no reward, or even hope of remuneration, never counting the cost, whether it means exposure and death to him or ultimate victory and glory; on he toils, obeying but one behest—and that the consciousness of duty well performed. But he is cheered onward by his prospective reward, for when the golden chord of his life threatens to break, when he lays down to die—though it may be no victor's crown will be pressed down upon his brow—he will hear the voices of seraphims sent down by God to escort his noble soul to the skies, grow louder, chanting, "He lived to bless mankind." When he takes up his abode in his home not built by hands, eternal in the heavens, he will hear the welcome plaudit, heard at last by all Good Samaritans, "Well done, thou good and faithful servant, enter thou into the joys of the Lord." Then about his head, Angels, who have seen his ministerings while on earth, will wreathe garlands of perennial flowers plucked from God's garden of everlasting love.

How beautiful thus to live, giving of all one possesses to alleviate the pain and sorrow of a neighbor, or to save a neighbor's life. How noble thus to die, crucified on the Cross of Brotherly Love that on one's dead self men may rise to higher things, and, by sacrifice, the pain and sorrow incident to life, may be lessened.

In Raleigh the medical man finds an atmosphere of sympathy. By birth and education you are a benevolent and charitable people. Those of us who have had the good fortune to visit you before know you are a hospitable people. We know that the hour for our departure will arrive all too soon. We know that we will be so highly entertained, so royally treated, that when we close our work here and prepare to disperse to our homes we will do so under the burden of ten thousand regrets. It is said that Schiller once accepted an invitation to visit Goethe. They soon became close friends. Time flew rapidly by for both. At last Schiller tore himself away. When he reckoned how long he had remained he exclaimed, "I came to spend a month, I have remained thirty years." Don't be alarmed, now, none of us will remain so long as that, though if we should I am sure that every day of our visit would be filled with pleasure. If we were not forced by precedent and circumstances to migrate from one section of the State to another, I would move, and am sure the motion would be carried unanimously, that we locate the Society here.

The word has gone forth from Raleigh to all North Carolina doctors to come and spend the week with them and make ourselves at home. This we will do in the good, old-fashion way.

Permit me, in behalf of the North Carolina State Medical Society, to thank you most cordially for this royal welcome. We are delighted to gather together "under your vine and fig-tree" and enjoy your many courtesies. The doctors of North Carolina are proud

of their State, and equally proud of their capital city. We point with joy which equals yours to its great past, we rejoice with you over its brilliant present, and we look forward with ever intensifying and ever increasing interest, with a thrill of joy, which equals yours, to its great future. We will gather hope and inspiration by our visit here, and when that time shall come "when fond memory brings the light of other days around us," I am very sure that this occasion will be a great oasis in the life of every one so very fortunate as to attend this meeting.

Dr. Henry Bascom Weaver, of Asheville, the President-elect, then delivered the annual address.

On motion it was referred to the House of Delegates

The regular order of business was begun by calling for the first paper under the section of Physiology and Chemistry, "The Effect of Precipitins on the Human Blood," by Dr. F. L. Siler, of Franklin, who, being absent, his paper was referred to Committee on Publication.

The second paper under this section, "The Value of knowing the Composition of the Food Used in Feeding Infants," was read by Dr. Joseph Graham, of Raleigh, his time being extended beyond fifteen minutes to enable him to finish his paper.

Dr. S. T. Nicholson: I have listened with a great deal of interest to Dr. Graham's paper. It is very instructive and valuable, and I move to refer it to the Committee on Publications.

Dr. Parrott: I agree with Dr. Graham that there is nothing to equal mother's milk. I second Dr. Nicholson's motion.

Chairman: Any further discussion?

Dr. ———: Dr. Graham took the ground that cow's milk was best when there was no mother's milk. The paper was a most interesting one. I am exceedingly glad to see a young man of his age take an interest in such a subject. It is one of the most important in medical circles to-day. He was not, however, as specific in telling us as to the management of cows' milk as he might have been. The Doctor has gone well into the subject. His is a most worthy and excellent paper.

CHAIRMAN: Any further discussion?

There being no further discussion, it is moved and seconded to refer the paper to the Committee on Publications. Referred to the Committee on Publications.

The next section, Pathology and Microscopy, was taken up. Dr. M. L. Stevens was not present to read his paper on "The Local Clinical Laboratory." "Report of a Fatal Case of Acute Gonorrheal Septicæmia," was omitted, Dr. E. J. Wood, of Wilmington, not being present. The next paper on the programme, "Pathological Report of Some Recent Interesting Cases," by Drs. Joseph Akerman and E. J. Wood, of Wilmington, was also omitted, those gentlemen not being present.

A specimen of "Double Dermoid Cyst of the Ovary" was then demonstrated by Dr. R. H. Whitehead, of Chapel Hill, who made an instructive talk on the etimology of such cases.

The next paper, "What Work Shall we Refer to the Clinical Laboratory and What Shall we do Ourselves?" was read by title and referred, Dr. Prioleau, of Asheville, not being present to read it.

A motion was made for adjournment until 3:00 o'clock. Motion carried.

The general session of the Society was resumed in the Representatives' Hall at 3:00 p. m. and the section of Pathology and Microscopy continued. (The House of Delegates met in the Senate Chamber at 3:30 p. m.)

A paper on "Papillomata and Their Degenerations" was read by Dr. Wm. de B. MacNider, of Raleigh, N. C.

DR. BOOTH: I think this is well worth our investigation, if nothing else. It is an interesting subject.

CHAIRMAN: The next paper on the programme is "Hook Worm Diseases."

DR. PARRIS: We have several interesting papers along that line, by Dr. Nicholson and others and as they are not present,

but will be here to-morrow, I move that we postpone the papers on Hook Worm Diseases until to-morrow.

CHAIRMAN: You hear the motion, gentlemen. What shall we do with it?

It was moved and seconded to postpone these papers until 9:00 o'clock Wednesday, the 25th.

The hour having arrived for the meeting of the House of Delegates and the Vice-President being absent, a temporary chairman was nominated, W. W. Cozart, who presided.

A most interesting paper, "A Plea for More Just Judgment of Drug Users," was read by Dr. Geo. S. Petty, of Memphis, Tenn.

DR. CROWELL: I think this Society should congratulate itself on having such a valuable paper read. I was glad indeed to hear Dr. Petty bring out this as a disease and not as a malicious, loathsome habit. If there is one word in the world I despise, it is that word "habit." I am glad Dr. Petty brought out the fact that it is a disease. It is as much a disease as typhoid fever or any other disease. It is one sorely neglected by the medical profession—one that the medical profession will have to look up and study more. The Doctor did not touch on the etiology. The great majority of cases have their incipiency in the hypodermic syringe. As to the moral perversion, I agree with Dr. Petty very heartily. I do not believe a man is made a moral pervert from the use of morphine *per se*. Any of us will protect our own interests, and to be sure we will do a thing to protect our own life. Some men say it is not a physical disease. I say it is. We have the pathological condition to realize. The patient deserves more sympathy than if he had typhoid or malarial fever.

DR. ROBERTS: There is one point Dr. Pettey failed to bring out. That is, why is a man forced to do these things that he speaks of in self-defense. Is it of his own free will? Is it because he cannot be cured? If a man has an oppor-

tunity to be relieved he has no right to impose on the public by theft and do things contrary to religious teaching. Is the public to blame, or the individual? He can be cured and should be cured. If he refuses to be cured he should be punished as other criminals.

CHAIRMAN: Any further discussion?

DR. PETTEY: I am glad the Doctor brought out the point. If he will study the question carefully he will find that people are forced to do as they do. In my experience I have only one man that did not want to be cured. A great many such people fall into the hands of those who have gall enough to take their money and let them go. They have been bled and bled until they have spent their life-blood to get rid of it. When they go off to institutions they come back not cured and have no opportunity to stand on their feet and be men. Looked upon as outcasts and forced to lead lives of deception and get into the gutter. The gradual reduction method is worse than nothing—ten thousand times more so. It makes a maniac of an otherwise sane man. You may get it down to the smallest portion. He looks forward to that little that is to give him some relief—a maniac to the day of his death. If you take one who has not been ruined by that process, treat him properly and free him from the habit, he will stand upon his feet a man among men. I have seen it done hundreds of times. It can be done, and is being done. Do not think I would defend any man from immorality. When I look upon it from the drug-user's side, it gives me a sympathy for them as broad as the east is from the west. If you will come into contact with such men you will come to the conclusion that they are the most misunderstood men that ever lived. Men who come into contact with them have the broadest view of all. The men of the medical profession ought to study this question.

DR. ROBERTS: I move to refer this paper to the Committee on Publications. I would suggest that when we get home

and read the proceedings of this Association, that we consider well the arguments which the Doctor has placed before us; that we have more sympathy for these unfortunate people. And as our sympathies go out to them, we may study and make every effort in our power to relieve them. Above all, let us be very careful how we make these perverts, how we by our prescriptions shall bring about these habits. No doubt a large majority of them are brought about by the physicians' prescriptions.

It was then moved and seconded that the State Board of Medical Examiners make their report. Motion carried, and report was presented and received.

After reading of report, Dr. Parrott, of Kinston, read a paper on "Quinine," this being the first paper under the head of Materia Medica and Therapeutics.

Dr. Hines: I have been using quinine pretty largely for more than forty years. I think I might express an opinion. In 1861 I had 150 to 200 patients every day. I found quinine the most valuable remedy in large doses. I tried it ten months and ten grains in eight hours almost always stopped a chill. I have been giving it since 1861. Nine times out of ten it stops a chill. I had chills eleven years off and on and quinine taken in time never failed to check them. They return, but you can check them. After an experience of forty years I have the most unbounded confidence in quinine as a valuable remedy in malaria.

Dr. Herring: Dr. Parrott's paper is well-written and all that, but I am astonished that such a slur should come from a malarial country. Twenty-odd years ago I read the first paper on "High Temperature" to this Society. I was laughed at, ridiculed and *cussed* at; one man even called me a criminal. I said to him: "Sir, what would you do if one of your children were dying? He said he would let her die." Only one doctor agreed with me. He said, "Give her 30 grains," which I did. Her temperature was 118. For three

months she took 90 grains of quinine every two hours. She married a doctor and has not been sick from that day to this. She took 15,000 grains of quinine. She weighs 160 pounds and is as fine a specimen of health as there is in the United States. As to mosquitoes, I think they are the most hateful thing on earth, but still, some of the worst cases of chills occur during a big snow and where there have been no mosquitoes in six months. They are the hardest chills to cure.

Now, as to pneumonia. I will relate a little incident. A little boy of a medical friend of mine had it, and the poor fool lost his senses on account of his boy being sick. I went down there and met five doctors there in the room. They were all disagreeing. The child had pneumonia. They said: "Herring, take charge of the case." I said: "You cattle get out of here." In the room was an oil stove that you could cook with, sending its fumes out all over the room. There was a good open fireplace. Every window was down so you could not see a wink in the room. The temperature was 105, double pneumonia. I told them that I would get the stove out, open the windows and make a fire. I told one of them to make a fire. There was plenty of wood. I made a fire, as the doctor said he could not make a fire in that fireplace, threw open the windows and put the child in the back part of the house. I told them to give him five grains of quinine every three hours until he got from 60 to 100 grains, and if the temperature did not go down, quit. He phoned to me after about fifteen hours and said the temperature was 101. Now, I don't contend that the quinine did him a particle of good. But I do contend that the fresh air saved his life. My daughter took 15,000 grains in eight months, except when she fooled me. I found out she was fooling me, and made her show her tongue.

Dr. Hines: When he first read his paper I was skeptical. I have seen reports of temperature since as high as 123, vouched for by reputable men. They had to have a special

thermometer made. One as high as 118 and the other 123. I remember seeing a case of malarial fever in 1863. A little boy was constantly complaining with his back and head. I gave him five grains of quinine every three hours for forty-eight hours. He was well in three days.

Dr. Parrott: It gives me a great deal of pleasure to know that two of the most distinguished men of the Medical Society, Drs. Hines and Herring, agree with me so entirely as they do in the discussion of this paper. I expressly avoided stating just how much I would give in the beginning. After the patient has been thoroughly cinchronized, six grains is a sufficient amount of quinine to cure any case of malaria. This is drawn out by experience and the use of the microscope. After the initial dose of quinine it is absolutely impossible to find a malarial organism in the blood. It cannot be found in any part of the human body. Quinine is absolutely useless unless it eliminates the toxic substances. Why should we give more quinine than is necessary to eliminate this toxic substance? Ross, who perhaps knows more about malaria than anyone in the world, says two grains every four hours will produce a sufficient saturation of the blood to eliminate the malaria altogether. As regards Dr. Herring's case, I know nothing. He came to our town and did a great deal of good. I do not say his quinine was of use in the case. I agree with him that it was the fresh air that saved the patient. In this particular case I know that at the time he saw the case it was approaching the crisis. If there is one disease in which mortality has not been reduced, that particular disease is pneumonia.

There being no further discussion of the foregoing paper, and the two papers next on the programme not being read, as their authors were not present, ("Gas and Ether Anæsthesia," by Dr. Southgate Leigh, Norfolk, Va., and "Medical Dietetics in General Practice," by Dr. Geo. P. Edwards, Sylva), the paper of Dr. S. M. Crowell on "A Modern

Method of Treating Morphine, Whiskey and Other Drug Addictions" was read and opened for discussion.

CHAIRMAN: Is there any discussion of this paper?

DR. PETTEY: I am glad to note that Dr. Crowell brings out the idea of elimination as the key to success in the treatment of this disease. Some six years ago I began this work. I have never succeeded in curing this by old methods. I determined to look at my patient forgetting that he was using a drug. Morphine checks the secretions. That led me to look at my patient as one whose secretions had been retained until he was a mass of toxic poisons. I found that the secretions of the skin and kidneys should be freely eliminated, and also the bowels. * * * The thought occurred to me to go direct to the motor centres. In your diseased conditions with a drug patient you know how helpless you are. You must free the patient from toxic matter. You will have to wash him inside and out. Make every secreting and excreting gland do its duty. After that it is a very simple matter. I think this is the rational method of cure, and should be taken up by medical men.

DR. WILLIAMS: I am very glad to hear the paper and Dr. Pettey's discussion. Those of the Medical Society who remember being at the Wilmington meeting some years ago and who will take time to refresh their memories, will find that this paper is simply the discussion of some years ago. Morphinism is nothing more than the improper use of a drug that favors the development of a disease. You must set up the eliminating functions of the body. When that is done the patient can be put into a normal condition where he does not need the use of a drug. Morphinism is a curable disease. Every physician ought to make himself familiar with it. These drug diseases are better treated in sanitariums, I admit. I have had cases like this,—all sallow, nervous, unreliant—when a course of treatment would give them flesh and no desire for morphine whatever. It is a fact that people

will relapse sometimes. They get sick, take a Dover's powder or something like that. They like the effect. They get so after awhile they carry around their syringe and ask their neighbors to take it (morphine) because it makes them feel so happy.

CHAIRMAN: Any further discussion?

DR. ROBERTS: I do not want to discuss it especially, but these two papers which have been read for us have brought, or rather intensified some thoughts I have had for some time. I want to throw out a suggestion there for our consideration, and that is the enormous growth of the drug habit, not only of morphine and the like, but you will find that your people are taking all kinds of headache cures and all kinds of stimulants. They do not take them surreptitiously; they could not be secretive about it. Something ought to be done to check it. All these things are not by physicians' prescriptions. We do not prescribe these headache remedies. The drug stores and dry-goods stores all over the country have some headache cure, and everybody in the neighborhood as they go into the post-office in the country will see some advertisement before them of somebody's headache cure that will relieve the headache in five, ten or fifteen minutes, and some woman will take it; she sees some little improvement, and the habit is formed. It is certainly in the power of the medical profession to do something. It is a duty we owe to ourselves and to the public to try to check this habit.

DR. SWANN: We do ourselves an injury to some extent. The general opinion is that the physician is responsible for the morphine habit. I believe it is the patent medicine habit. I believe we are not so much responsible as we are inclined to admit.

DR. CROWELL: There is a class who have learned the use of the hypodermic syringe. When they get sick they think they are going to die. They invariably call for morphine. It may be a young physician, very anxious to make a good im-

pression. He gives the morphine, but of course that adds to the toxinic condition. There are those that are in the wrong atmosphere. They learn in districts of questionable character the use of morphine. They say: "Dr. So-and-So got me in the habit." There are those who sell it at so much a "shot." This is a natural tendency or perversion, I think. We have a tendency to judge all classes of morphine users from that class. We do not see the better class of morphine users. We see the typical "fiend" on the street. All cases of morphinism are judged by that one case. There is a better class, and the greater part, if treated, will give good results. As Dr. Pettey said, in regard to their secretiveness or concealing the fact that they use it, they do that to protect themselves; they do that to protect their financial interests.

The next paper read was "Some Uses and Abuses of Glasses," by Dr. R. V. Brawley, of Salisbury.

Chairman: Any discussion of this paper? Dr. Kellam, I would like to hear from you on this paper.

Dr. Kellam: Mr. President and Members of the Medical Society: I thank you very much for the courtesy you have shown me by asking me to take part in the discussion. I assure you it is a pleasure to me. I think the Doctor covered the point very well from the general practitioner's standpoint. There is very little I can add. I was pleased to hear him condemn the fitting of glasses by any and everybody. The great trouble with men that fit glasses and sell them is that they do it free. They give all but the glasses. I have not seen anyone who went to an optician who did not leave with some kind of glasses. You see a great many people with concave glasses who ought to be wearing convex. I think it is our duty to educate the public in keeping away from these practitioners. I thank you, gentlemen.

There being no further discussion, a paper was read by Dr. Michael Hoke, of Atlanta, Ga., on "The Treatment of Joints Injured by Chronic Rheumatism." He displayed several

X-Ray photographs of such joints during the reading of his paper. He explained before reading the paper that he had reference to chronic inflammation of the joints other than tuberculosis, and each of the cases referred to in the paper was something different.

Dr. Knox: I thank Dr. Hoke for his paper. It is an able and practical one. I think it is right to make a thorough investigation and try to find the underlying cause of this condition. I have been very much struck with his treatment and management of his cases. If you will treat such cases intelligently, they can be cured in the long-run. I have found the use of hot air and massage useful.

Chairman: Any further discussion?

Dr. Hoke: I simply wish to say that the use of hot air is a very good thing. Most of the cases I have seen have gone on for a long time. It is a waste of time, however, to use hot air, etc., before operation. I always use it after operation. We have to be careful, of course, how we use these things.

It was moved to adjourn until 8:30 p. m. Motion carried.

The Society resumed its session at 8:30 p. m., the Second Vice-President, Dr. Rodman, of Washington, N. C., presiding as Chairman.

The annual essay, entitled "An Ounce of Prevention," was read by Dr. J. G. Blount, of Washington. This was received with applause.

The annual debate followed, with Dr. J. A. Williams, of Reidsville, as leader. He opened the discussion with a valuable paper on "Diphtheria."

Dr. Cobb: I do not think we use enough (Anti-toxin); that is the chief trouble.

Dr. Burroughs: I wish to lay emphasis on three points in the management of diphtheria: (1) Preventative meas-

ures; (2) curative measures; (3) thorough fumigation. I remember the case of a little boy five or six years old. It will serve to illustrate how much anti-toxin you can give. His temperature was 104. I could not see anything the matter with his throat, although I examined it closely. I thought he had the grip. I went to see him next day. Temperature 101. They sent for me early Sunday morning. I was detained and could not get there until about two o'clock. I found that there was a diphtheric membrane in the boy's throat. Well, I phoned to the drugstore, asking for 3,000 units of anti-toxin. I introduced it. Next morning I gave 3,000 more and the following morning I gave 3,000 more, which was 9,000 units of anti-toxin. His temperature went down and I never gave a dose of medicine. I am satisfied that the mistake we make is in giving 1,000 units when we should give more. The patient should be isolated and given large doses of anti-toxin, and thorough fumigation is necessary.

Dr. Nicholson: I have had some experience with diphtheria and I find from experience that the main point in the use of anti-toxin is getting to your patient early in the disease. The dose of 3,000 units answers every purpose where you reach the patient three days afterwards. I have given 5,000 units after that. I have lost only one case and that one was a child on the fifth day. The Doctor covers the point in his paper.

Dr. I. W. Faison: In diphtheria, the Doctor who just read the paper took the ground that it was a contagious disease. That is the point I hoped some of the gentlemen would discuss. According to the latest theory, diphtheria is absolutely not a contagious disease. I do not think it comes under that class. It is a communicable, infectious disease; not a contagious disease. I do not want to discuss it much, as I read a paper in the morning, but as no one has taken up that part I will do so. The treatment the Doctor put down

is correct. My idea is, that if you have a high temperature that you have a complication. Two years ago I was in New York and saw a child in a hospital who had Klebs-Loeffler-bacillus for several months. They kept the child there as a matter of experiment. Made the experiment for nine months. Klebs-Loeffler bacilli was present every day. The child was allowed to go out down town. When there came up a rain one afternoon the child took cold and a membrane of diphtheria showed in the throat in forty-eight hours. Diphtheria is a local disease in the beginning. When the temperature becomes high you have a secondary condition. When the glandular system becomes involved you have a high temperature. The treatment of diphtheria to-day is by anti-toxin in full doses. As far as any other treatment is concerned, I do it to appease the father, mother or aunt. Keep the mouth washed and keep the throat clean. As to trying to make a child gargle, you might as well throw it on the ground. In giving anti-toxin, do not consider the age of the patient at all. There is as much room for the germ in the throat of a child as there is in the throat of a man. Anti-toxin should be given in full doses that should be repeated in from six to eight hours. I have never seen the slightest danger in giving anti-toxin. I am glad the men who make it fix it up so as it can be given antiseptically. I prefer Mulford's, owing to the way it is put up. It is the easiest to handle and the easiest to give. It takes good, full doses, and you had better give one dose more than you need than a half dose less than you need. I hope the gentlemen here will fix in their minds absolutely the difference between a *contagious* disease and an *infectious* disease. I will take pleasure in the morning in bringing out these ideas as I see them. I think that diphtheria is a communicable infectious disease. I would have no more hesitancy in taking my child in diphtheria than in typhoid fever. There is no more danger than in tuberculosis or typhoid fever. It is absolutely not contagious.

Dr. Graham: I have listened with a great deal of interest. One point I would bring out. I do not believe sulphur would kill many germs. There is great danger in not protecting the physician or nurse. Either use a mask or glass plate in front of the face for protection. Diphtheria in a nursing infant is rare. A nursing infant may, however, infect the breasts of the mother. When this occurs it cuts off the food supply. I think we would draw the milk from the breasts and feed it from a bottle. In a case like this the infant cuts off its own food supply.

Dr. Fox: I think diphtheria is both contagious and infectious. In justification of that belief I will cite a case that came under my observation twenty years ago. There was a woman in the country pulling fodder at a man's house. Her child got sick at the man's house. She took the child home, a distance of some two and a half miles. She stopped at four houses on the way home, simply as a casual call. In every house in which she stopped the children took the disease. One in the first house, three in the next, four in the next and two or three in the other. She did not stay in the house all night, but simply called with the child, probably for an hour. The child died in a few days. Now a simple case of diphtheria is probably not contagious. The Doctor said he would not be afraid for his child to go into it. I would no more think of permitting one of my children to go into it than I would into the fire, holding the views that I do as to the contagiousness and infectiousness of the disease.

Chairman: Dr. Williams, will you close the debate?

Dr. Faison: I admit it is a communicable disease. I have been taught that a communicable disease is a contagious disease. Prophylactic treatment and thorough disinfecting —that is the whole treatment of diphtheria. In regard to the adverse remarks as to sulphur, I recommend that where it is not possible to get the formaldehyde.

The discussion being closed, a motion was made for allow-

ing Dr. Paquin to read his paper, as he had to leave on the morning train. The paper was entitled, "The Relation of the General Practitioner to the Prevention and Cure of Tuberculosis." Motion carried.

A motion was made to adjourn until 9:15 Wednesday morning, May 25th. Motion carried.

The general session was resumed at 9:15 Wednesday morning, May 25, 1904. After the house was called to order, a motion was made by Dr. J. M. Parrott to dispense with the reading of the minutes and proceed with business. Motion carried.

CHAIRMAN: The first paper on the programme is the report of the Chairman on the Practice of Medicine.

DR. PARROTT: Before we take up that report I would like to say that we are honored by the presence of one of the most distinguished surgeons in the city of Philadelphia,—one who has attained great prominence in the profession—Dr. A. C. Wood, connected with the University of Pennsylvania. Also one from Virginia, my friend Dr. Wright. I move that the courtesies of the floor be extended to these gentlemen.

By a rising vote the courtesy was extended.

MR. PARROTT: We would be glad to look at these gentlemen. (Dr. Wood rising, expressed his thanks.)

The discussion of the papers on Hook Worm Disease being postponed until Wednesday morning, they were next taken up. Dr. Tucker, of Raleigh, was not present to read his report. Dr. Julian, of Thomasville, was not present to read his paper on "Hook Worm Disease." The first paper under this section was read by Dr. W. S. Rankin, of Wake Forest, the title being "Uncinarias is in North Carolina, Its Distribution, Frequency, Etiology, and Pathology." Time was allowed him to finish reading his paper.

CHAIRMAN: Any discussion of this paper?

Dr. Anderson: As there are other papers on this subject, I move the discussion be postponed until the other papers are read. Motion carried.

The next paper on the subject was "Uncinariasis in the Mountains of North Carolina," by Dr. W. P. Ivey, of Lenoir.

Dr. J. L. Nicholson, of Richlands, not being present to read his paper on "Uncinariasis in Eastern North Carolina," a motion was made by Dr. Roberts that Dr. R. H. Lewis be allowed to read the paper. Motion carried.

Dr. Lewis, before reading the paper, made the introductory remark that Dr. Nicholson lived in Onslow county.

After the reading of the paper, a motion was made to refer it to the Committee on Publications, and also allowing Dr. Nicholson the privilege of revising his paper. Motion carried.

Dr. Lewis: It is a serious disease, but a curable and preventable disease. Any one familiar with the disease can make a diagnosis one hundred yards off. One point I want to make is this: The State has provided for the benefit of the medical profession a laboratory where examination can be made. Write Dr. McCarthy. Send him 4 cents postage and he will report to you. I hope the profession will avail itself of this opportunity. The main thing in preventing this disease is to prohibit the back-yard as a play-ground for children, and also for other purposes.

Chairman: Any further discussion?

Dr. Pendleton: The discussion of the Hook Worm Disease is instructive and interesting. But it would appear that the clause we read in Holy Writ, "Man that is born of woman is of few days and full of trouble," should be revised to read "few days and full of worms." Dr. Rankin's paper was interesting to me. He tells us that he made his diagnosis microscopically. I may be doing him an injustice, but I did not hear him say that he obtained evidence in the shape of

the worm itself. In the last twelve months I have seen several cases. Three in my own practice. All three were confirmed by obtaining the worm. In examining the feces for the ova of the worm we may find a great many other substances that might be mistaken for the ova. I want to ask the question whether or not Dr. Rankin verified his microscopical diagnosis.

Dr. Rankin: In all cases treated there were worms. From Dr. Nicholson's paper, all the cases he treated showed eggs. The diagnosis is easy. I do not see how anyone could slip up. All cases were treated with thymol without exception.

There being no further discussion, the regular Wednesday morning session was proceeded with. Dr. Aaron was not present in the hall to read the report.

Dr. Faison then read a paper on "Infection," which was referred to the Committee on Publication.

The next paper read was "Immunity," by Dr. Albert Anderson, of Wilson.

Dr. Graham: This a most important subject and one that should not go without discussion. It is one that should be in the mind of every physician. You have seen diphtheria cured without remedies and typhoid fever recover in spite of medicine. There must exist in nature a power by which she herself is capable of coping with infection. We have a great number of theories. We are doubtless on the right line by having all these theories brought out.

Dr. Anderson: I thank the Doctor for his remarks. He is an expert along this line of work, and always does the right thing at the right time. Thank you, sir.

The next paper read was "Uric Acid and Metabolism," by Dr. Ben K. Hays, of Oxford.

Chairman: Gentlemen, this is a very important paper and should not be passed over hurriedly. It has a great deal of merit in it. The time having arrived for the conjoint ses-

sion, we will postpone the discussion of this paper until after this meeting. I now declare this Society temporarily adjourned.

Dr. Hubert A. Royster then announced that the annual oration, "Æsculapian Dreams," would be delivered in the Metropolitan Hall in the evening, by Dr. C. A. Julian, followed by an address on "Radium and Radio-Activity in Relation to Medicine," by Prof. Chas. Baskerville, of Chapel Hill. This to be followed by the reception by the Capital Club, all ladies accompanying physicians to be admitted without card.

The conjoint session was then held.

The Society having resumed its regular session, discussion was asked for upon Dr. Ben Hays' paper on "Uric Acid and Metabolism."

Dr. Malone: I did not have the good fortune to hear all Dr. Hays' paper on what I consider an important subject. We have talked about bugs, worms and insects. The papers have been very interesting and are timely. I think this subject is one that is of a chemical nature. I believe in this protection against bugs, worms and insects. I am reminded of an incident that occurred in New York once. A young lady who taught school was sitting across from Dr. McGregor at the table. Sparrows had been introduced to destroy bugs, etc. The lady asked which he considered worse, the sparrows or the worms. He replied: "I have never had the English sparrows, but I have had the worms." The question before us, Uric Acid, is a most important one. There is little difference between uric acid poison and the insane asylum. I have had some experience in treating people who suffered from excess of uric acid in the system. I have seen patients who were considered insane and who were sent to the insane asylum. That caused a stigma to rest on the

family. If a young man fell in love with a young woman belonging to that family, people would say: "That won't do." The accumulation of uric acid in the system is during the restive period. The system gets rid of it between seven and ten in the morning; then there is some relief. I remember the case of a lady who lived in the country. She moved to the city with her husband, who, by the way, was kind to her. She dispensed with her everyday exercise. She settled down to boarding. She ate heavily. When she came under my observation and my treatment she was a healthy, robust-looking woman, very bright, and a fluent talker. Next morning she was sitting on the porch and suddenly she burst into tears. She cried: "My mind is going; I am going to the asylum." All manner of diversion was used upon her. She would go on in that way until about 10:30, after which she would be agreeable and pleasant. She went on in that way. The husband wanted to take her to the asylum in order that she might be treated, relieved and cured. Now, one should make a microscopic examination of the urine, blood, etc., in cases like that. I want to impress upon our physicians that where they have a case before a magistrate, where they say a woman is demented, etc., they should examine her and treat and relieve all these symptoms. I do not know of anything that tears the system so near to pieces as uric acid in the system. I want to emphasize the fact that physicians should test such cases as these and keep the stigma of insanity off. I have never had the bugs, hook worms, etc., but I know it is a most aggravating disease. It cannot be worse than excess of uric acid in the system. In this condition the patient is loath to take exercise; he is listless and indifferent, does not want to move. Stir him around. Elimination is started. I had a case where I tried to make the patient get out and take exercise. He said: "Doctor, I rather die than saw a stick of wood. I don't think I could do it to save my life." I made him try, however, and I asked him how he felt. He

said he felt better after all. Take the exercise treatment and you will get well. Alkaline treatment is the thing for excess of uric acid.

Dr. Hays: A friend of mine criticised the paper. He said: "You neglected the most important point—you did not emphasize exercise." I wish to thank the gentleman for this discussion.

Chairman: The next paper on the programme is of transcending importance—"Pneumonia," by Dr. Jno. C. Montgomery, of Charlotte.

Dr. Montgomery, by way of introduction, made some amusing remarks relative to his stammering, leaving it to his audience to determine whether he had an "impediment in his speech," or was just a "plain stutterer." This elicited hearty laughter.

Dr. A. G. Carr: Years ago I was called to see an old lady in her 70's. She had pneumonia. They asked me, "Will she die to-night?" I supposed she would. I came back after supper. The case fell to me. I gave that woman *fifteen* hypodermics of whiskey, brandy and strychnine. Next morning I got to thinking of oxygen. I also gave permangate of potash and digitalis; also tincture of capsicum and it effervesced. The patient began to breathe better, and to-day that woman is alive. I believe in inversion and oxygenization. That makes the patient cough. I have inverted patients and there would be a mass of mucus coughed up, after which the patient would breathe quite frequently. Inersion, stimulation and oxygenization are the things I want to impress on you. I have tried tincture of capsicum a great deal. I hope you will all try it.

Dr. Pettey (Memphis, Tenn.): There is one remedy which I want to call attention to in the treatment of pneumonia, less known than any other valuable remedy of which I have any knowledge. It is a remedy that supports the flagging heart without damage. I refer to sparteine. While

digitalis is a heart support, yet at the same time it raises the blood pressure, and it is doubtful if it is a heart tonic or not. I consider it a doubtful remedy. Alcohol gives some increased power and so does ammonia and nitro-glycerine, but it is too transient. There is a remedy that meets the requirements—sparteine. As to its dose, some writers use from one-third to one-sixth of a grain. The misunderstanding of the dose comes more from the tablet makers than from the druggist. The dose of sparteine is from one to two grains. I have given two grains every two hours and never have seen any bad effect. Digitalis increases the heart's action, but raises the blood pressure. Sparteine increases the heart's action more than digitalis, at the same time reducing the dilation of the entire system. In using this you will do away with venous congestion. Digitalis does not do the work. Sparteine does do it. It improves the circulation and improves the action of the kidneys. In my judgment there is no drug like sparteine. I could not practice medicine without it. When I see a flagging heart I get good results with sparteine. My faith in it is abiding. Sparteine has the sustaining power of digitalis. Give one to two grains every two hours. It is a non-toxic drug. One authority says that it is a heart tonic. It is almost unknown to the practicing physicians of our country. Watch the results.

Dr. Hudson: It is generally conceded, gentlemen, that the remedies mentioned are appropriate for pneumonia. When shall we give them? We should consider the stages of pneumonia. It has been my experience with pneumonia that if I can reach the patient before the crisis he is safe. It is a grave disease. In the stage of congestion I merely interrogate the audience: what must I do in high temperature to get him across the crisis? That is the question for every man here. What must we do? The coal-tar preparations are used by some, but I have discontinued their use. I no longer look to these remedies for good results. When

there is high temperature sustain the patient with strychnine, and bathe patient if possible. I do not consider digitalis useful in pneumonia. I have found the alcoholic treatment good, yet I believe in strychnine. I do not believe in counter-irritants when the temperature is high,—only when the temperature is less than 103. My remarks apply to bronchial lobular pneumonia.

Dr. Payne: I shall simply discuss certain points made here to-day and I shall confine my remarks entirely to acute local pneumonia. I wish to say that in my experience sparteine is a most uncertain remedy. The preparations I have been able to obtain are uncertain. To-day I get a good one and to-morrow an inferior one. I think it is a mistake to give sparteine, strychnine, or any stimulant whatever in early pneumonia. The effort should be to lower the action of the heart; and in very many cases the fathers were not so absolutely wrong in bleeding cases of pneumonia. I know I am a heretic in speaking of bleeding for pneumonia. But there are cases when the judicious use of the lancet will lessen congestion. I recall now a case in my early practice. When I went to see the patient in the morning he was propped up with pillows; lips blue. I gave him digitalis and I gave him a little more whiskey. I went home and told my father what I had done. He said: "Why didn't you bleed him?" I said I didn't know anything about bleeding; I had never learned to bleed. We drove out there and we bled the patient twenty (20) ounces. The blueness disappeared from his lips and his respiration became better. The man said, "Thank God, Doctor, I am better." He was better. The man is alive to-day, a monument to what the lancet will do when judiciously used. Another fact: we don't know a bit more about treating pneumonia than we did fifty years ago. I know that we say pneumonia is due to a specific germ. I know all this, but I defy any man to give statistics to prove that the treatment of pneumonia has improved in anything

except its theory. I believe in controlling the heart's action. I contend that if digitalis is used judiciously you will get good results every time. Give moderate doses, and increase every ten or twelve hours. It is one remedy that always warns bfore the danger point is reached. When vomiting occurs the heart's action is controlled. You simply have the reins, and can drive your horse almost at will. There are cases where stimulation becomes necessary. Your strychnine comes in and your sparteine, whiskey and ammonia. There is a time when an old remedy will come into play—a *sine qua non*—I refer to mercury. Treat pneumonia this way between the ages of two and fifty, and death will be the exception. It is probable that somebody will get on me with all four feet. I defy anybody to show better results with modern methods than with the methods I have shown.

Dr. Roberts: I always read a paper that I see headed "Pneumonia." I always listen to a discussion of pneumonia. I want to know something about pneumonia. I have tried to find out something about pneumonia. Thirty years ago I heard Austin Flint—then an old man—say in one of his lectures that he had been practicing medicine forty years and in that time the treatment of this disease had changed two or three times. He went on to detail the treatment of pneumonia when he began to practice. He told of one of his cases in Louisiana, where he waded knee-deep to get to his patient. Owing to the condition of the roads he did not see his patient for several days, and when he did see him he was better without any treatment at all. He (the patient) had drunk a bottle of corn whiskey, without any other medicine whatever. The statistics of the cure of pneumonia are no greater under what is considered to be the improved treatment than in the days when he was practicing medicine in Louisiana. During the thirty years I have been practicing medicine I have tried to keep up with the treatment of pneumonia, because it is as wide-spread as any disease we have.

Its manifestations are the same everywhere. We find it in the infant and in old age; it is everywhere. We can have experience with it any time and anywhere we practice medicine. I want to say that I do not know anything more about treating pneumonia than I did thirty years ago. I mean that my patients die just as much to-day as they did years ago. I do not know the cause. I will accept any theory. But give me a treatment that will cure more patients than I cured thirty years ago. I want a treatment that will lessen the death rate of pneumonia. What that treatment is I do no know. I cannot find it published. Mr. President and Gentlemen, I appreciate Dr. Payne's remarks on this subject.

DR. ————: I also appreciate the Doctor's remarks on this subject. I will also say to a large extent he stole my speech. I endorse most of the things he says. I even endorse his blood-letting. Like him, I did not learn anything about blood-letting in my college days. I got an old doctor to show me how to bleed a patient. I will say that my father was a practicing physician and learned all these things in his young days. I also use Norwood's tincture. I believe in strychnine in the latter stages of pneumonia. I believe in calomel and in blisters. There is another question—that of counter-irritants, which I am old-timey enough to want to use. One I gained from my father. The use of lye soft soap in pneumonia is good. I have a half-gallon fruit jar of it made from the lye run through black-jack ashes. I believe it is better than anything as a counter-irritant in pneumonia, and I use it freely. I believe that I am old-timey in my treatment of pneumonia. You may say to me, "Well, why don't you try the new remedies?" I have tried them. I have tried everything—every line of treatment suggested in later years for the relief of pneumonia. I do not find anything better than this line of treatment that Dr. Payne has mapped out. These remedies, used judiciously, do as much good as anything I can find in my practice, but they

are not satsifactory. There are no improvement on thirty years ago, and according to what Prof. Flint tells us, they are no improvement on seventy years ago. I do not care what causes it; what I want to find is something that will reduce the death rate. I am looking for it. For that reason I read all on pneumonia that I can find.

Dr. Lewis: This is one of the most important subjects before the Society. In the first place, we are confronted with a disease that claims just a few less victims than tuberculosis. It is no respecter of persons. It comes to everybody and the general practitioner has to see it. In the treatment of pneumonia, I think the words of Hare as regards typhoid fever should be remembered: "The physician should be the watchman all the time, and the therapeutist only when necessity arises." The less we do in this disease in a therapeutic way, the better, unless it is distinctly and positively indicated. One must not do too much for the patient himself. He is oftentimes overdone. The doctor gives too much food and too much liquor before the time arrives to give it. One should be a watchman all the time in pneumonia. Because a man has pneumonia, or because a child has it, there is no use to run to drugs. Pneumonia in children is not a fatal disease—mortality 4 per cent or less. You need hygenic treatment and arrangements. You need to keep secretion active. I have treated many children without anything but a laxative and a sponge bath. There are times when you will have to be careful of the heart. There are times when you have to give whiskey or strychnine. The Doctor inveighs against opium. Montgomery says restlessness is better than opium. We have what is called delirium. * * * The old doctors gave opium with good results. Do not keep your patient somnolent at all times. * * * There is a time when you have to give strychnine according to effects and not according to dosage. There is no more important subject that has come before us than this. I wish to enter my protest that any man shall disregard any preparation of opium.

Dr. Hill: I am a little surprised that of all these speakers none, so far as I know, have touched upon this so-called toxic condition which we find in cases of pneumonia. I do not believe that the high temperature alone in pneumonia kills many people. I am sure that the congestion of the lungs destroys many lives. There is a peculiar toxic condition which we all see and which I do not understand. I would be glad to hear someone say something further on this point. In regard to the remarks of the second speaker relative to the drug sparteine, I wish to say that I also find it to be an unreliable drug. As unreliable as it is, I think a dosage of two grains is a powerful dose.

Dr. Crowell: I would like to know what dosage the gentleman who preceded me uses for sparteine.

Dr. Petty: I have reason to believe that if it is used in proper doses, that is, from one-half to two grains, the effect looked for will be had. I use Mercks' Sparteine Sulphate. It has been called an ideal stimulant. When I began its use I began with 1.30 of a grain, finally to 3.30, and when I got on up to what should have been the proper dosage I could see the stimulating effect of the grain. It is just as reliable as strychnine, given in proper doses and at the proper time. One thing we are mistaken about is the administration of morphine. It is a sad fact that the majority of us do have the tendency to relieve our patients at the wrong time. We have a tendency to relieve them so we can go elsewhere. We often know it is a mistake to do this. There are certain conditions under which morphine can be administered. Opium locks up the secretions and it is the toxic condition which Dr. Hill spoke of that we should try to eliminate.

His Excellency, Gov. Chas. B. Aycock, entered the hall at this point, to make his address of welcome. He was introduced by Dr. Carr, who spoke as follows:

Gentlemen and Ladies of the North Carolina Medical Society:

I have the distinguished honor and great pleasure of introducing to you a man who is not only a great leader in the progress of education in old North Carolina, but a person who takes a great interest in the progress and uplifting of medicine and surgery in North Carolina—His Excellency, Governor Charles B. Aycock.

Gov. Aycock spoke as follows:

Mr. President, I am much obliged. *Ladies and Gentlemen:*

I could not forbear giving myself the pleasure of looking into your faces this afternoon. Not having had the pleasure of being with you on yesterday, I am glad to be here to-day. I am glad to see you. I have traveled several hundred miles in North Carolina since you were assembled here, and I could not just understand the rather hilarious state of joy which I found in the citizenship of the State. I began to notice it at Hillsboro. There was a stir in that ancient town, which Cornwallis would recognize if he were to return. At Salisbury the city was astir. At Davidson yesterday I asked what caused all this happiness. They told me that all the doctors were in Raleigh. Critical people would think that they were rejoicing over your absence. They were rejoicing because you were here studying to make yourselves better physicians. It is a pleasure to see this body of men and women here taking into consideration the betterment of the health of the people. It is a pleasure to know that this body is as progressive as any other in the American Union. It shows what can be accomplished by perseverance, industry, study and culture. It is a cultured body and a studious body,—one that holds the view that a man should not practice until he has devoted four years to that science. Your work is helpful to all, and we are glad to have you in Raleigh. (Applause.)

Dr. Carr (who had risen to speak when the Governor entered): I yield to the Governor, and sometimes the Governor yields to his wife.

The discussion was then resumed:

Dr. Montgomery: I wish to say this: that the average case of pneumonia will get well without any medicine whatever if you will give it half a chance.

Dr. Malone: I beg to disagree with the gentleman who said there was nothing in the way of improvements since thirty years ago. There is something new under the sun—

one of the pleasantest remedies that can be given—something you and I did not have, trained nurses.

Dr. ————: I stand corrected. Still I hold to the position I first took—that the death rate stands the same.

Dr. Faison: From the discussion brought out this afternoon, I believe we all have the same results; and I don't believe any two of us have the same treatment. I do not believe that any line of treatment can be laid down for every case. I believe every case of pneumonia is a law unto itself. I believe that the patient should be watched carefully, nourished and stimulated at the proper time. He must and will get well.

The following papers were not read, as the authors of the same were not present: "Asthma, Its Etiology and Treatment," by Dr. Jas. Sawyer, of Asheville. His paper was referred to the Committee on Publications, as it was unfinished. "Report of 14 Cases of Pulmonary Tuberculosis Five Years After Treatment by Culture Products," by Dr. Louis F. High, of Southern Pines.

The next paper on the programme was read the night before, Dr. Paquin was allowed to do so in order to leave on the early train. This paper was entitled "The Relation of the General Practitioner to the Prevention and Cure of Tuberculosis."

The next two papers on the programme, entitled "Tuberculosis, What Shall we do to Check Its Onward March?" by Dr. S. P. Holding, of Wake Forest, and "Malaria as Complicating Typhoid Fever," by Dr. A. S. Pendleton, of Henderson, were not read, but referred to Publication Committee, their authors not being present.

The next paper read was one by Dr. J. D. Roberts, of Mt. Olive. He altered the title of his paper somewhat, the original title being "An Atypical Form of Typhoid Fever With Sub-Normal Temperature." He said by way of introduction to this paper, that the case was still under observation when he left his home. He brought notes with him and pre-

pared the paper after reaching Raleigh. He said it was not quite what he would like to present to the Society, but it was the best he could do under the circumstances. He said that he did not depend on one thermometer, but had three in taking this temperature. After reading his paper, Dr. Roberts said: "I have given these hurried notes in this case with the hope that some discussion will throw light on this question. I do not know what is the matter with my patient. If there is any relief for him I would like to know it. If there is any way to increase his temperature I would like to do so.

There being no discussion of the foregoing paper, "Clinical Notes on Typhoid Fever," by Dr. Charles Z. Candler, of Dillsboro, was called for. He was not present to read the paper, and it was referred to the Committee of Publication.

A paper on "Specific Keratitis and Trachoma" was then read by Dr. J. H. Honnett, of Wilmington.

The next paper read was one entitled "Adenoids in Children: A Plea for Early Recognition and Treatment," by Dr. R. J. Teague, of Roxboro. Not having finished his paper in the allotted time, he was allowed time in which to do so.

Dr. Williams: I am glad the Doctor read the paper. Adenoids demand early recognition and removal. If the physician is not capable of operating, I think the case should be turned over to a specialist on that line.

Dr. Kenna: I think, Mr. President, that this is one of the most important subjects that has come before the meeting. So many children have this thing. It is something that should be recognized early and operated on. I would like to say that the treatment by sprays, douches, etc., is a waste of time. It is easy to make a diagnosis. The open-mouthed, dull look marks it at once. Besides, parents will tell you the children snore at night and are not bright at school. The best thing to do is to cut them out as soon as

possible. My experience has been that if adenoids do not develop before puberty they do not come on. They may in a few cases go over into adult life. Spraying does no good. It only causes unnecessary trouble and unnecessary pain to the child. You had just as well let them alone. Operate and remove thoroughly and properly and you have done all that is possible for the child.

Dr. Carr: I do not believe in sprays and douches. Operation is the only thing I see when they become excessive.

Dr. Briggs, of Asheville, was not present to read his paper on "The Pupil Reflex as an Aid to Diagnosis," which was referred.

Dr. Royster's paper, "When to Amputate," was, by error, placed under the section of Anatomy and Surgery, and it properly belonging under the head of Railway Surgery, Dr. Alfred C. Wood, of Philadelphia, Pa., read a paper on "Cholelithiasis, With Special Reference to Surgical Treatment.'" By way of introduction, he said: "When Dr. Parrott asked me to be present at this meeting he wrote such a polite note that I could not refuse. I am glad to be here, but I would be more comfortable in the position of listener than in my present position on my feet. I also feel as if I were intruding, as your programme is so full and interesting. I had the usual difficulty in selecting a subject before I chose one which interested me, because it has fallen to my lot to see a number of these cases recently. Five to ten per cent of adults are affected with gall stones. I shall touch upon some points which have interested me."

After the reading of the paper an intermission was given in order that the members of the Society might see the specimens which the Doctor brought with him.

Dr. Long: I rise to say that I regard the paper to which we have just listened as one of the most clear-cut, thorough, and yet conservative, I have ever listened to. I congratulate the Society on having had the pleasure of hearing Dr. Wood's

paper. I agree with the Doctor in his conclusions. I would ask Dr. Stuart McGuire to discuss this paper.

Dr. McGuire: I thank Dr. Long, but I am suffering from such a dreadful cold that I suggest that Dr. Taylor read his paper, which is almost on the same line, and allow both to be discussed together. He leaves to-night.

Dr. Taylor then read his paper on "A Plea for Early Explorative Incision for Diagnostic and Curative Ends in Masked Conditions of the Upper Portions of the Abdomen."

There being no discussion on the above-named paper, Dr. J. W. Long, of Greensboro, read a paper on "Gunshot Wounds of the Abdomen, with Report of Cases."

Dr. Way then read the report from the House of Delegates to the general meeting of the Society. The report showed the officers and committees elected for the following year.

It was moved and seconded that the report be received. Motion carried.

It was moved and seconded that the meeting adjourn until 9:15 the next morning (Thursday). An invitation was extended to the members of the Society to attend the Capital Club reception, and also the exercises held in the Metropolitan Hall at 8:30 P. M.

Wednesday evening at 9 o'clock Dr. C. A. Julian delivered a brilliant oration on "Æsculapian Dreams," which was followed by great applause. Then Professor Baskerville, of Chapel Hill, instructed and entertained his hearers for about two hours on the subject of "Radium," after which a delightful reception was held at the rooms of the Capital Club.

The general meeting of the Society resumed its session at 10 o'clock Thursday morning, May 26th, in the hall of the House of Representatives, Dr. Rodman, Vice-President, in the chair.

(The House of Delegates also met promptly at 10:30 A. M.)

The section of Anatomy and Surgery was resumed. The first paper taken up was that of Dr. A. J. Crowell, on "The Use of the Cystoscope." He exhibited a number of these instruments before reading his paper.

Dr. Parrott: As always, the Doctor has read a most excellent paper. I am not disposed to criticise the Doctor's paper, for I do not feel competent. My experience with cocaine in the bladder has been disastrous. I condemn the use of cocaine in the bladder unless absolutely necessary. I think a 2 per cent solution is a dangerous procedure. I have had fatal results in a case where a 4 per cent solution was used in the anterior uretha, and my experience has not been at all satisfactory. When one is skilled in the use of the catheter it may be of more or less benefit.

Dr. Crowell: I do not know that I have anything further to say, only in regard to cocaine. I have absolutely no fears in using it as I do. When the mucus membrane is not injured I use it, I might say, almost fearlessly. You have to keep your eyes open to all such things. I was talking with Dr. Young in regard to cocaine and I am of his opinion—that you do not have any trouble with cocaine where you do not have trauma. He uses it altogether now, whereas he used to use eucaine.

The next paper read was that of Dr. Stuart McGuire, of Richmond, Va., on "Ununited Fractures."

Dr. Whittington: I consider this one of the most timely, appropriate and thorough papers that has been presented to the meeting this year. I only want to impress upon the minds of those present the great importance of prevention. Of course, there are conditions where it might be said to be almost impossible to obtain primary union of fractures without constitutional treatment. I have been impressed in different hospitals of the country with the fact that ununited fractures are too frequent. In my experience of twenty-two years—eight in the country and the last fourteen in Ashe-

ville—I have not been unfortunate enough to have an ununited fracture. The point that impressed me most in the hospitals of the North was that these ununited conditions were due to improper reduction and improper maintenance after reduction. Most physicians use too much padding and they use too much cotton and put on bandages loosely and carelessly. While this is one of the main causes, there are cases where the constitutional condition of the patient is such that it is almost impossible to get union.

Dr. Pettey: I think the paper is timely and it adds to the literature on this subject. Most of it (the literature) is disappointing. I had occasion to look up this matter in an ununited fracture case. I went to several authorities, not knowing what course to pursue. To my sorrow, I could not find anything. Most of the books on surgery gives no intimation of what to do. I think the paper we have just listened to adds something on this subject; also, on the point of callouses. If our writers would be more definite on that line and tell us what time a fracture may be allowed to exist, it would be a great help to physicians. A man has to allow his good sense to act. I hope they may be more specific hereafter.

Dr. Hays: Having been a pupil of Dr. McGuire's, and feeling that what little I know of surgery is due to his teaching, I would be the last man in the State to undertake to add anything to a paper he has written, or criticise it adversely. We recognize in the paper we have heard the hand of a master. When a man comes to us who is a master of abdominal surgery and for the time being puts those things away and tells us of the practical every-day things we will meet in our practice, we owe him a debt of gratitude, and should rise to thank him for the paper he has given us.

Dr. McGuire: I thank the Society.

The next paper called for was that of Dr. St. Clair Spruill, of Baltimore, Md. He was not present.

Dr. F. H. Russell, of Wilmington, was not present to read his paper on "Treatment of Some Common Fractures in Private Practice." On motion it was referred.

The next paper read was that by Dr. Whittington, of Asheville, on "Abdominal Surgery, with Special Reference to the Preparation and After-Treatment." Referred.

The paper entitled "Talma's Operation for Cirrhosis of the Liver, with Report of a Case One Year After Operation," by Dr. L. B. McBrayer, was not read, but referred, he being absent.

A motion was made to allow Dr. Southgate Leigh, of Norfolk, to read his paper on "Gas and Ether Anesthesia," as he was not present the day before. Motion carried.

Dr. Cobb: I thank the Doctor for his paper. It is very timely. I think, as a general rule, the administration of anesthetics is done by inexperienced persons. Very often the youngest graduate administers anesthetics. In the North they use ether; in the South chloroform. During the war they used chloroform exclusively, and I have never seen any bad effects from it. I always examine the heart and lungs. In some places they think it is criminal to give chloroform. I think this is due to the reckless manner in which it is given. There are more deaths due to the use of ether than from chloroform. I wish to thank the Doctor for his paper.

Dr. Dickenson: I am more or less familiar with the administration both of ether and chloroform, and the effects of both on the patient. I prefer ether, with Dr. Leigh, not only on account of its effect on the patient, but also on the operator. Ether gives the operator perfect control. He is guided by the respiration of the patient. This confidence insures a skilful and complete operation, without fear on the part of any one, and no excitement.

Dr. Hines: I have seen chloroform administered and have never seen any bad effects from its use. During the

war we used chloroform because we could not get ether. I have given it myself during my practice. One of my patients got a little too much once, but she soon got over it. I think chloroform is the best because the patient gets over the effect sooner. I have been astonished all my life as to the way they give chloroform. Too much care can not be used, and the man who knows the danger and looks for it is the man to give ether.

Dr. ————: I know very little as to the relative uses of chloroform and ether, but I think with properly selected cases that either can be used—either chloroform or ether. I am with Dr. Leigh. I think it is in the anesthetizer—the man who is giving the drug—more than the drug. I want to challenge the point that my friend, Dr. Dickenson, of Wilson, has made. I must admit that I am astonished. I think when a surgeon takes charge of the patient he has no more business watching the patient than he has watching the stars when the sun is shining. He had better import a man to give the anesthetic. The operator has no business watching the patient.

Dr. Robertson: I am thoroughly impressed with Dr. Leigh's paper. I want to accentuate one point to which the other speakers have not alluded, and that is the desirability of giving gas before giving either of the anesthetics. I have administered chloroform and ether, and especially in administering ether I have been impressed with my own inhumanity, on account of the difficulty in getting the patient under the influence of the anesthetic. If I were in surgical work now I would hail with delight anything that would obviate the disagreeable part of giving the anesthetic. It is a point that I would ask you to consider in giving anesthetics, to try it (gas), because of its utility in getting the patient started off.

Dr. ————: We doctors here in North Carolina do not all have the hospital and hospital assistants. One thing we

should all be educated to is that of blood pressure. When blood pressure is low we should give something to raise it.

Dr. Coppedge: I think we can do very well sometimes without giving either one. In several cases recently I wanted to give chloroform to make an examination, but found it would endanger the patient too much. I gave whiskey and morphine without hurting the patient. I thought it might be well to mention it.

Dr. ————: I have been in practice about nineteen years and have given chloroform again and again without any bad effects from its use. I see that in Baltimore they use ether almost entirely. The only case where I saw any bad effect from using chloroform came very near dying. All at once the woman stopped breathing, and I thought she was dead. They switched off on ether then. In my practice I have given it (chlorform) again and again without assistance. I have never had any bad results. When the bad results do come, it is almost like a flash of lightning. I have enjoyed the discussion very much.

Dr. Whittington: It is a fact that if any man engaged in an operation should be competent, it should be the anesthetist. I have never given ether but once in my life. I have had my assistant to give it. One of the greatest things is to be master of your instrument. I have never seen a death from chloroform, and never an immediate death from ether, but I have seen patients a few times that seemed almost gone. In very many instances it was due to an unnecessary amount of the anesthetic. A man who gives chloroform should give it carefully and considerately. It does not take a large amount of chloroform to keep the patient anesthetized for two hours. I have seen a patient anesthetized for two hours on less than an ounce of chloroform. When chloroform kills it kills by paralyzing the centers of respiration. When you have a flagging of respiration, if you will use artificial respiration and encourage the circulation of the blood, the

patient will generally recover. Ether kills by its effects on the lungs and kidneys.

Dr. Mason: Since this has come up, I would like to say that we should give the anesthetic drop by drop. Another thing, the anesthetizer should not watch the operation. It is one thing I have noticed time after time. I had the pleasure of being an anesthetizer in one of the large hospitals, and I always made it my business to watch the patient and not the operation. In fact, there should be two—one to give the anesthetic and one to watch the pulse and respiration.

Dr. Williams: I would like to speak a word in this connection from the point of view of the patient. How many of us have ever taken ether? If a man is not afraid to give chloroform, he should give it from the point of humanity. How many have ever gone through it? It is a most awful nightmare. My friends would not take it from me. It was days and days, it seemed to me, before I got over it. I declared I never would take it again. You are permeated with it days afterwards. You are saturated with it. It was not long before I went to Baltimore again. I got smothered again; they said I would have to take it. I never did go through such an intoxication. The nausea is against your patient. I think it should be avoided by any man who is not afraid to give chloroform. I would rather die than take ether. I believe it would not be more awful than having my leg cut off.

Dr. Malone: I think this is the best part of the convention—discussion. Let us hear from each other; let us tell our experiences. I am a chloroform man. I never gave ether but once in my life. In New York Dr. Wyeth invited us to witness an operation. He said to me, "Doctor, I wish you to take charge of the anesthetic." I knew the half dozen trained nurses there knew more about it than I did. How I got through with it I don't know. I kept the woman under it for two hours. I have not given any chloroform in

many years, because I do the operating. When I started to practice medicine thirty years ago I gave it foolishly. When any one wanted a tooth pulled I gave it. My father remarked that I would have dead people hauled out if I didn't mind. I have given chloroform thirty years and have never had an accident from it in my life. I do not know much about ether.

Dr. Tayloe: There is one condition in giving anesthetics which I want to call attention to, and that is in the operation fore harelip. Just before you close the parts you want the patient to come out of it. I remember seeing a case some years ago. The child came very near dying. It made an impression on me. Just before you get ready to approximate the parts you do not want the patient fully under the anesthetic.

Dr. Monroe: I do not advocate one above the other. Personally, I use chloroform more than ether. Ether is more generally used than chloroform. More safe, as generally recognized. I have never seen a case of death from chloroform or ether, but in cases of danger the operator was the first to detect it. Every physician should have the practical experience in giving anesthetics. It looks like asking a man to learn to swim without going into the water. We ought to know what we are doing. For country practice chloroform is the thing to use, for you can give it yourself and perform little operations where there is no one to help.

The House of Delegates, in a body, headed by the officers of the Society and the President-elect, escorted by Drs. T. E. Anderson and R. H. Whitehead, entered the hall, and Dr. Rodman then introduced Dr. David D. Tayloe, of Tarboro, the newly-elected President of the Society. Dr. Tayloe addressed the Society as follows:

Ladies and Gentlemen of the North Carolina Medical Society:

It is my pleasant duty to acknowledge the honor conferred upon me. To be selected President of this organization is an honor that I appreciate. I am aware that the position to which I have been

called is surrounded by work and responsibility. In the performance of my new duties I do not want to be without the co-operation of the members of this society. They have given to us the broad foundation—our Society is destined to be the strongest in the South. Gentlemen, I thank you very sincerely for the honor conferred upon me."

CHAIRMAN: Any further discussion of Dr. Leigh's paper?

DR. TEMPLETON: In this discussion I notice that ether has very few friends. Nausea follows it—it is worse than chloroform. Another thing I have not heard alluded to is the condition of the patient. Where a patient has absolutely no fear of chloroform when on the operating table, not expecting any trouble from it, he gets along better. I have heard men who were in the civil war attribute the absense of mortality in war to psychological conditions—the exhilaration of battle, etc.

There being no further discussion, Dr. Leigh was asked to close the discussion. He said, in closing:

Gentlemen, I am very much pleased to have brought out such an extensive discussion on this subject. I wish that I felt as safe with chloroform as Dr. Cobb. I have never, in a very large number of ether anesthesias, lost a patient, either as anesthetizer or as operator. I have seen but one death on the table, and that was a patient of a fellow-practitioner. I believe that chloroform is practically safe if the anesthetizer will watch for the earliest sign of trouble. Stop it then—either temporarily or change into ether. I do not believe you will have any trouble if you will do that. If the patient's color is bad, that is a very bad sign. In using chloroform it is due to some deep influence of the drug. If the pulse gets weaker or irregular, if you stop it then and take measures to correct that (by giving stimulants, etc.), then there is no danger, but I tell you it is difficult to get hold of an anesthetizer who will be as careful as he ought to be in the administration of chloroform. I will admit then that chloroform is the best anesthetic if it can be given in

such manner. Do not soak the inhaler, but drop it drop by drop, not giving more than is necessary. In regard to this "new" method, it is not an experiment. It is absolutely without danger, so far as we have been able to find. It is delightful to take. The point of humanity is important. Gas is far pleasanter than chloroform. Patients do not mind it. You tell them it is the same thing dentists give when they pull teeth. We put them under with gas and it takes a very small quantity of ether to keep them under the anesthetic afterwards. You begin with the gas. The patient goes under, and you continue with a small amount of ether. That does not affect the lungs. It does not affect the kidneys if they are healthy. I am making a great effort to make anesthesia as pleasant to my patients as possible. The reason people do not go to hospitals these days is they are afraid of anesthetics. Every one of you should have the apparatus. Use it once and you will never do without it again. I do not think we have been paying enough attention to this subject of anesthetics.

Dr. Pool, chairman of the Obituary Committee, read his report. It was moved and seconded to adopt this report.

Dr. R. E. Mason, of Charlotte, then read a paper on "Nephritis."

Dr. Crowell: There is one point to which I wish to call attention, one which the Doctor failed to mention. It is the decapsulation of the kidney, etc.

Dr. Mason: In regard to decapsulation, it was an oversight. I forgot that until I reached the city. The principle on which it is based is that it takes off pressure.

A motion was made to allow Dr. J. P. Monroe, of Davidson, to read his paper on "The Neurasthenic Condition." He changed the title, however, to "Treatment of Neurasthenia."

"Neurasthenia," a paper by Dr. E. B. Ferebee, of Raleigh, was not read, as he was not present, but referred.

Upon motion, the Society adjourned until 3 P. M.

The session of the general meeting was resumed at 3 P. M., the President-elect, Dr. Tayloe, in the chair.

The section entitled "Gynæcology" was next taken up.

The first paper read was that of Dr. P. A. Nicholson, of Washington, N. C., on "Immediate Repair of Lacerated Perinaeii."

Dr. Tayloe, D. T.: I regret that we have not had a large attendance to hear this paper. I think it is a paper which is exceedingly valuable. I am anxious to see Dr. Nicholson get up such a paper and read it before three hundred doctors.

The next paper read was "A Protest Against Indiscriminate Surgical Operations Upon the Female Organs of Generation," by Dr. A. K. Tayloe, of Tarboro.

Dr. Royster: I am gratified to have presented in such a clear manner the matter of conservatism in gynæcology. In the array of mistakes which are laid at the door of the gynæcologist there are also the same mistakes made by medical men. Simply because a man is a surgeon does not make him infallible. I freely admit that the pendulum has swung too far. There is such a thing as radical conservatism. Dr. Tayloe must admit that surgery is the most humane thing in the world. * * * Here are women who have been through every possible kind of treatment, and asking, "What can you do next?" It is operation or nothing. If you perform an operation you do a thing which may possibly make her better. * * * The so-called cirrhotic ovary is the most painful in women. Every gynæcologist sees ovaries every day that are enlarged, prolapsed, etc. A surgeon must also be a good physician. That fact should be kept in mind by all.

Dr. Macon was not present to read his paper on "Lacerated Cervix: Results and Treatment." On motion, referred.

A motion was made to allow Dr. Holding to read his paper on "Tuberculosis," as he was not present when it was called for on the preceding day. Motion carried, and paper was read.

Dr. Weaver: Koch did a great thing when he announced his discovery in 1882. We are apt to run off at a tangent. There is the susceptibility to the disease, the predisposition to the disease. That is where your heredity comes in. There must be a peculiar condition of the cells themselves. There must be a hypertrophied condition of the cells, which I believe is a disease itself. We must improve the resistance of the body. I have no doubt there are thousands of germs right in this building. No doubt you have breathed in billions into your lungs. It is your resistibility which prevents you from having this disease. Take care of the individual. In reference to the mode of infection, Dr. Holding said that it was through the bronchial glands. My idea is that when you have predisposition and bacillus combined, you have the disease. Take care of the dried sputum and take every step you can in combatting the disease. Our little town was the first in North Carolina and the second in the United States to adopt measures for the prevention of this disease. We find it everywhere. We teach people how to manage expectoration. In our town the consumptive is not considered harmful. We take care of the sputum. Not only that, when the end comes to some of them we have the health officer to go around, he thoroughly disinfects every room, takes out the mattresses, etc., everything before any other patient goes into the room. If the open air treatment is not sufficient we use the combined method. We bring in the tuberculin products and we are curing patients. We are letting some die, because when they come they have consumption. We send them back in a better way than they come. I think the Society ought to adopt the resolutions and put them into effect. We should have mortality reduced to 4, 5 or 6 per cent.

Dr. Sykes: I admit that I have not been able to catch on to a great deal said in the meeting relative to consumption; but I have been listening with itching ears. Into whose

hands do these unfortunates fall when they have consumption? I want you to tell us how to cure it and so drum it into us that we can go into the country and cure some of them.

Dr. Holding: Nothing was said about the predisposition to the disease. I realize that it is important and predisposition varies in different people. Some families are predisposed, while other families are so constituted that they can resist the disease. While it is important to recognize predisposition to the disease, yet remember also that without the germ you can not have the disease. As to the modes of infection, I realize the importance of the bronchial glands, while the alimentary system is held by many equally important as the respiratory organs. I do not think we should accept the teachings of any one man. As far as I am concerned, I do not accept any theory until it is proved. The Doctor spoke of taking measures against spitting. It is a hard thing to keep people from spitting, and while the ordinance is good, it is hard to carry out. There is one in this city, but it does not amount to a row of pins.

Dr. Hubert A. Royster presented the following specimens from his gynæcologic clinic of the University (N. C.) Medical School, and gave an interesting clinical history, with an account of the operative procedure in each case:

1. Case of repeated ectopic gestation in the same patient in one year.
2. Uterine fibroids complicating pregnancy (two cases).
3. Fibroma of the ovary.
4. Dermoid cysts of the ovary (two cases).

A resolution of thanks to the Capital Club and the local committee was then introduced and adopted by a rising vote.

President Tayloe announced the appointment of the following gentlemen chairmen of the scientific sections for the ensuing year, and especially urged that the gentlemen so designated would accept the chairmenships, not as purely complimentary to their recognized standing in the profes-

sion and professional worth, but as an incentive to better work. He expressed the desire that each chairman should lend every effort in his power to make the 1905 meeting at Greensboro one of the most complete in its grade of scientific work the Society has ever had:

Anatomy and Surgery—Dr. J. P. Monroe, Monroe.
Materia Medica and Therapeutics—Dr. R. A. Whittaker, Kinston.
Practice of Medicine—Dr. W. H. Cobb, Jr., Goldsboro.
Physiology and Chemistry—Dr. Lynn McIver, Sanford.
Obstetric—Dr. Thomas Stringfield, Waynesville.
Gynaecology—Dr. W. P. Whittington, Asheville.
Medical Jurisprudence and State Medicine—Dr. E. M. Brown, Washington.

The Society adjourned to meet in Greensboro, N. C., during the month of May, the date to be fixed by the officers of the Society in consultation with the local committee.

H. B. Weaver, *President.*

J. Howell Way, *Secretary.*

HOUSE OF DELEGATES.

Minutes of the First Annual Session (Fifty-First of the Society) Held in Raleigh, N. C., May 24, 25 and 26, 1904.

The House met in the hall of the House of Representatives, Capitol building, at 3:15 P. M., Tuesday, May 24, 1904.

Called to order by the President, Dr. H. B. Weaver, of Asheville.

Roll-call by Secretary showed the following members of the House, including delegates, councilmen and officers present:

President—Dr. H. B. Weaver.

Secretary—Dr. J. Howell Way.

Councillors—Drs. D. T. Tayloe, Frank H. Russell, Albert Anderson, Hubert A. Royster, Edward C. Register, Thomas E. Anderson, James A. Burroughs.

Councillors Absent—Drs. Oscar McMullan, H. S. Lott, J. F. Highsmith.

Delegates from component County Societies as follows:

FIRST DISTRICT.

Perquimans County Society, Dr. T. S. McMullan, Hertford.
Washington County Society, Dr. B. F. Halsey, Roper.

SECOND DISTRICT.

Hertford County Society, Dr. S. S. Daniels, Winton.
Martin County Society, Dr. W. H. Harrell, Williamston.
Pitt County Medical Society, Dr. W. H. Bagwell, Greenville.
Beaufort County Society, Dr. P. A. Nicholson, Washington.
Lenoir County Society, Dr. James M. Parrott, Kinston.
Craven County Society, Dr. .....

THIRD DISTRICT.

New Hanover County Society, Dr. F. H. Russell, Wilmington.
Duplin County Society, Dr. J. M. Faison, Faison.
Sampson County Society, Dr. F. H. Holmes, Clinton.
Columbus County Society, Dr. J. G. Hall, Beardman.
Pender County Society, Dr. G. F. Lucas, Currie.

FOURTH DISTRICT.

Northampton County Society, Dr. H. W. Lewis, Jackson.
Halifax County Society, Dr. H. B. Ferguson, Halifax.
Nash County Society, Dr. W. H. Whitehead, Rocky Mount.
Edgecombe County Society, Dr. S. N. Harrell, Tarboro.
Johnson County Society, Dr. L. D. Wharton, Smithfield.
Wilson County Society, Dr. E. T. Dickenson, Wilson.
Wayne County Society, Dr. J. F. Miller, Goldsboro.
Greene County Society, Dr. W. W. Whittington, Bullhead.

FIFTH DISTRICT.

Cumberland County Society, Dr. A. S. Rose, Fayetteville.
Robeson County Society, Dr. H. T. Pope, Lumberton.
Scotland County Society, Dr. A. W. Hamer, Laurinburg.
Richmond County Society, Dr. A. C. Everett, Pegues.
Moore County Society, Dr. Gilbert McLeod, Carthage.
Harnett County Society, Dr. J. F. McKay, Buie's Creek.

SIXTH DISTRICT.

Wake County Society, Dr. G. M. Bell, Wakefield; Dr. L. B. Young, Rolesville.
Franklin County Society, Dr. R. F. Yarborough, Louisburg.
Vance County Society, Dr. G. A. Coggeshall, Henderson.
Granville County Society, Dr. S. D. Booth, Oxford.
Person County Society, Dr. R. J. Teague, Roxboro.
Caswell County Society, Dr. H. H. Dodson, Milton.
Alamance County Society, Dr. W. R. Goley, Graham.
Orange County Society, Dr. R. H. Whitehead, Chapel Hill.

SEVENTH DISTRICT.

Anson County Society, Dr. J. M. Covington, Jr., Wadesboro.
Union County Society, Dr. J. P. Munroe, Monroe.
Mecklenburg County, Dr. G. W. Pressley, Charlotte; Dr. I. W. Faison, Charlotte.
Cabarrus County Society, Dr. D. G. Caldwell, Concord.
Lincoln County Society, Dr. T. F. Costner, Lincolnton.
Gaston County Society, Dr. E. C. Boyette, Mount Holly.
Cleveland County Society, Dr. S. S. Royster, Mooresboro.
Rutherford County Society, Dr. J. F. Jonas, Thermal City.

EIGHTH DISTRICT.

Ashe County Society, Dr. J. L. Bollon, Crumpler.
Guilford County Society, Dr. D. A. Stanton, High Point; Dr. M. F. Fox, Guilford College.
Forsyth County Society, Dr. E. F. Strickland, Bethania.
Stokes County Society, Dr. W. B. Moore, Smith.
Surry County Society, J. B. Smith, Pilot Mountain.
Yadkin County Society, Dr. M. L. Matthews, East Bend.

NINTH DISTRICT.

Davidson County Society, Dr. D. J. Hill, Lexington.
Rowan County Society, Dr. C. M. Poole, Craven.
Iredell-Alexander County Society, Dr. Thomas E. Anderson, Statesville.
Caldwell County Society, Dr. W. P. Ivey, Lenoir.
Burke County Society, Dr. I. M. Taylor, Morganton.

TENTH DISTRICT.

Buncombe County Society, Dr. M. H. Fletcher, Asheville.
Haywood County Society, Dr. J. F. Abel, Waynesville.
Transylvania County Society, Dr. W. J. Wallis, Brevard.
Jackson County Society, Dr. Charles Z. Candler, Dillsboro.
Macon-Clay County Society, S. H. Lyle, Franklin.
Cherokee-Graham County Society, Dr. R. J. Orr, Robbinsville.

Upon the conclusion of the roll-call, Dr. J. Howell Way presented the annual report of the Secretary, as follows:

REPORT OF SECRETARY.

RALEIGH, N. C., May 24, 1904.

To the President and Members of the House of Delegates.

GENTLEMEN:—Agreeable to our laws, I submit for your consideration a brief report of the work of the Secretary for the past year.

After the adjournment of the Society at Hot Springs, last June, on my return home, I immediately went to work to secure the largest possible results during the year. It was some months before the volume of Transactions could be issued. In its preparation I added several new features which have seemed to commend themselves to many of the members who have advised with me. I had printed and circulated throughout the State literature showing what we proposed doing in the way of organization.

In this work you are to be congratulated in the wisdom of your selection of a Council last year. I am sure the honor for the splendid results we have so far achieved must be laid at the feet of these excellent gentlemen—all busy, active practitioners, yet men inspired with a noble zeal for the advancement of their profession's best interests, they have each endeavored, even at the sacrifice of their personal interests to leave unturned no stone in the way of effort to make the organization a success. And under the able direction of our honored President I may be pardoned for saying none could have done the work better than they.

As county organizations have been reported to me, after securing the approval of the Council, I have issued charters to seventy-two County Medical Societies, as follows, naming them in the order of their charters:

COUNTY MEDICAL SOCIETIES CHARTERED.

Number.	SOCIETY.	Councillor's District.	Number.	SOCIETY.	Councillor's District.
1	Buncombe	10	39	Jackson	10
2	Haywood	10	40	Davidson	9
3	Burke	9	41	Cherokee, Graham	10
4	Madison	10	42	Swain	10
5	Catawba	9	43	Halifax	4
6	Person	6	44	Wilson	4
7	Orange	6	45	Union	7
8	McDowell	10	46	Macon, Clay	10
9	Robeson	5	47	Nash	4
10	Forsyth	8	48	Columbus	3
11	Johnston	4	49	Rowan	9
12	Transylvania	10	50	Pitt	2
13	Sampson	3	51	Wake	6
14	Gaston	7	52	Northampton	4
15	Iredell, Alexander	9	53	Wilkes	8
16	Brunswick	3	54	Harnett	5
17	Cumberland	5	55	Yadkin	8
18	Granville	6	56	Onslow	3
19	Yancey	10	57	Wayne	4
20	Cabarrus	7	58	Richmond	5
21	Scotland	5	59	Davie	9
22	Cleveland	7	60	Edgecombe	4
23	Greene	4	61	Craven	2
24	Mecklenburg	7	62	Lincoln	7
25	Henderson, Polk	10	63	Pender	3
26	Guilford	8	64	Hertford	2
27	Rutherford	7	65	New Haven	3
28	Caldwell	9	66	Montgomery	5
29	Duplin	3	67	Randolph	8
30	Vance	6	68	Martin	2
31	Stokes	8	69	Pasquotank, Camden, Dare	1
32	Franklin	6	70	Currituck	1
33	Caswell	6	71	Perquimans	1
34	Beaufort	2	72	Washington	1
35	Alamance	6	73	Watagua-Mitchell	9
36	Ashe	8			
37	Anson	7			
38	Moore	5			

From the above list it will be seen that charters have been issued to seventy-three component County Societies, including eighty counties of the ninety-six counties of the State. In some other counties a partial organization has been effected; but I have rigidly adhered to the rule not to issue a charter to any county until after approval of the Councillor for that district and until a special blank application which I prepared had been filled out and filed with the Secretary of the State Society. While in this I may have at times seemed a little given to "red-tapeism," yet I am sure a little reflection will demonstrate that we must be careful in issuing charters to component societies that they do not go into improper hands.

COMPONENT COUNTY MEDICAL SOCIETIES OF NORTH CAROLINA CHARTERED FROM JUNE 3, 1903 TO MAY 20, 1904.

No.	County.	‡Originally organized.	‡Original Officers.		Date of Charter from State Society as a Component County Society	Officers When Chartered.	
			President.	Secretary.		President.	Secretary.
1	Buncombe	Jan. 4, 1886	Dr. D. J. Cain	Dr. W. D. Hilliard	Oct. 5, 1903	Dr. Jno. H. Williams	Dr. G. S. Tennent.
2	Haywood	Oct. 7, 1889	" H. N. Wells	" J. Howell Way	Oct. 15, 1903	" J. F. Abel	" J Howell Way.
3	Burke	Sept. 16, 1903	" Geo. H. Moran	" I. M. Taylor	Oct. 23, 1903	" Geo. H. Moran	" Isaac M. Taylor.
4	Madison	Oct. 9, 1903	" J. H. Baird	" W. J. Weaverl	Oct. 23, 1903	" J. H. Baird	" W. J. Weaver.
5	Catawba	Sept. 5, 1903	" J. R. Campbell	" Geo. H. West	Oct. 24, 1903	" Jas. R. Campbell	" Geo. H. West.
6	Person	——— 1887	" Wm. B. Merritt	" Chas. Bradsher	Oct. 24, 1903	" C. G. Nichols	" J. A. Wise.
7	Orange	Aug. 27, 1903	" Isaac Manning	" C. D Jones	Oct. 24, 1903	" Isaac Manning	" C. D. Jones.
8	McDowell	Oct. 8, 1903	" B. A. Cheek	" Guy S. Kirby	Oct. 24, 1903	" B. A. Cheek	" Guy S. Kirby.
9	Robeson	Sept. 23, 1903	" J. D. McMillan	" L. R. Kirkpatrick	Oct. 24, 1903	" J. D. McMillan	" L. R. Kirkpatrick.
10	Forsyth	Jan. 5, 1903	" H. S. Lott	" J. S. Wright	Oct. 24, 1904	" H. S. Lott	" R. D. Jewett.
11	Johnston	Oct. 19, 1903	" Geo. J Robinson	" Thel. Hooks	Oct. 26, 1903	" Geo. J. Robinson	" Thel. Hooks.
12	Transylvania	Oct. 13, 1903	" W. M. Lyday	" Ed. S. English	Oct. 26, 1903	" W. M. Lyday	" Ed. S. English.
13	Sampson	Oct. 5, 1903	" Rich'd. E. Lee	" G. L. Sikes	Oct. 26, 1903	" Rich'd. E. Lee	" G L. Sikes.
14	Gaston	Sept. 5, 1903	" R. M. Reed	" L. N. Glenn	Oct. 26, 1903	" R. M. Reid	" L. N. Glenn.
15	Iredell-Alexander	Sept. 1, 1903	" S. W. Stevenson	" J. E. McLaughlin	Oct. 27, 1903	" S. W. Stevenson	" J. E. McLaughlin.
16	Brunswick	Sept. 17, 1903	" C. G. Goodman	" J. Arthur Dosher	Oct. 27, 1903	" E. G. Goodman	" J Arthur Dosher.
17	*Cumberland	April 24, 1877	" Thos. D. Haigh	" O. P. Robinson	Oct. 27, 1903	" T. D. Haigh	" Jno. D. McRae.
18	Granville	Aug. 28, 1903	" S. D. Booth	" G. T. Sikes	Oct. 27, 1903	" S. D. Booth	" G. T. Sikes.
19	Yancey	Oct. 25, 1903	" J. L. Ray	" C. P. Edwards	Oct. 28, 1903	" J. L. Ray	" C. P. Edwards.
20	Cabarrus	Oct. 10, 1903	" W. H. Lilly	" F. O. Rogers	Oct. 28, 1903	" W. H Lilly	" Francis O. Rogers.
21	Scotland	Oct. 19, 1903	" D. M. Prince	" A. W. Hamer	Oct. 28, 1903	" D. M. Prince	" A. W. Hamer.
22	Cleveland	Sept. 12, 1903	" T. E. McBrayer	" S. S. Royster	Oct. 29, 1903	" T. E. McBrayer	" S. S. Royster.
23	Greene	Feb. 27, 1899	" J. E. Grimsley	" G. C. Edwards	Oct. 31, 1903	" Albert West	" G. C. Edwards.
24	Mecklenburg	Oct. 7, 1903	" H. Q. Alexander	" Parks M. King	Nov. 2, 1903	" H. Q. Alexander	" Parks M. King.
25	Henderson-Polk	Oct. 12, 1903	" J. G. Waldrop	" A. B. Drafts	Nov. 3, 1903	" J. G. Waldrop	" A. B. Drafts.
26	Guilford	Sept. 4, 1903	" M. F. Fox	" Thos. R. Little	Nov. 3, 1903	" M. F. Fox	" Thos. R. Little.
27	Rutherford	Sept. 29, 1903	" T. B. Twitty	" E. B. Harris	Nov. 4, 1903	" T. B. Twitty	" E. B. Harris.
28	Caldwell	——— 1890	" A. A. Kent		Nov. 6, 1903	" A. A. Kent	" W. P. Ivey.
29	Duplin	Oct. 2, 1903	" J. M. Faison	" B. R. Graham	Nov. 7, 1903	" Jno. M. Faison	" B. R. Graham.
30	Vance	Oct. 30 1903	" R. J. Gill	" G. A. Coggeshall	Nov. 11, 1903	" R. J. Gill	" G. A. Coggeshall.
31	Stokes	Nov. 2, 1903	" A. G. Jones	" Thos. T. Watkins	Nov. 11, 1903	" A. G. Jones	" Thos. T. Watkins.
32	Franklin	Oct. 29, 1903	" J. E. Malone	" S. P. Burt	Nov 13, 1903	" J. E. Malonee	" S. P. Burt.
33	Caswell	Sept. 8, 1903	" H H. Dodson	" S. A. Malloy	Nov. 13, 1903	" H. H. Dodson	" S. A. Malloy.
34	Beaufort	Nov. 5, 1903	" J. T. Nicholson	" Ira M. Hardy	Nov. 14, 1903	" J. T. Nicholson	" Ira M. Hardy.
35	Alamance	Aug. 26, 1903	" Geo. W. Long	" J. W. McPherson	Nov. 14, 1903	" Geo. W. Long	" J. W. McPherson.
36	Ashe	Oct. 12, 1903	" J. W. Colvard	" J. L. Ballou	Nov. 16, 1903	" J. W. Colvard	" J. L. Ballou.
37	Anson	Sept. 14, 1903	" J. M. Dunlap	" J. M. Covington, Jr	Nov. 16, 1903	" J. M. Dunlap	" J. M. Covington, Jr.
38	Moore	May 1 1902	" M. E. Street	" Lynn McIver	Nov. 21, 1903	" W. A. Monroe	" Gilbert McLeod.
39	Jackson	Nov. 18, 1903	" J. M. Candler	" Geo. P. Edwards	Nov. 21, 1903	" J. M. Candler	" Geo. P. Edwards.
40	Davidson				Dec. 1, 1903	" C. A. Julian	" D. J. Hill.

COMPONENT COUNTY MEDICAL SOCIETIES OF NORTH CAROLINA CHARTERED FROM JUNE 3, 1903 TO MAY 20, 1904.

No.	County.	‡Originally organized.	‡Original Officers.		Date of Charter from State Society as a Component County Society	Officers When Chartered.	
			President.	Secretary.		President.	Secretary.
41	Cherokee-Graham	Nov. 19, 1903	" J. F. Abernathy	" M. T. Maxwell	Dec. 1, 1903	" J. F Abernathy	" M. T. Maxwell.
42	Swain	Nov. 20, 1903	" J. H. Teague	" R. D Holt	Dec. 1, 1903	" J. H. Teague	" R. D. Holt.
43	†Halifax	Nov. 17, 1903	" Jno. A Collins	" A. S. Harrison	Dec. 1, 1903	" Jno. A. Collins	" A. S Harris n.
44	Wilson	Jan. 3, 1890	" C. E. Moore	" Nathan Anderson	Dec. 1, 1903	" C. E. Moore	" Isaac W. Lamm.
45	Union	Aug. 7, 1902	" R. Armfield	" H. D. Stewart	Dec. 1, 1903	" R. Armfield	" H. D. Stewart.
46	Macon-Clay	Nov. 30, 1903	" S. H Lyle	" W. A. Rogers	Dec. 4, 1903	" S H. Lyle	" W. A. Rogers,
47	Nash	Nov. 28, 1903	" J. T. Strickland	" R. B. Miller	Dec. 7, 1903	" J. T. Strickland	" R. B. Miller,
48	Columbus	Sept. 28, 1903	" Neil A. Thompson	" J. C. Hall	Dec. 7, 1903	" N. A. Thompson	" J. Clegg Hall.
49	Rowan	Aug. 11, 1877	" J. G. Ramsay	" J. J. Summerell	Dec. 7, 1903	" J. Stevens Brown	" I. H. Foust.
50	Pitt	Dec. 14, 1867	" C. J. O'Hagan	" W. A. Bernard	Dec. 11, 1903	" Jenniss Morrill	" Chas. O'H. Laughinghouse.
51	Wake	Nov. 12, 1903	" J. J. L. McCullers	" H. G Utley	Dec. 12, 1903	" J. J. L. McCullers	" H. G. Utley.
52	Northampton	Dec. 1, 1903	" A. J. Ellis	" R. P. Morehead	Dec. 14, 1903	" A. J. Ellis	" R. P. Morehead.
53	Wilkes	Dec. 7, 1903	" J. W. White		Dec. 19, 1903	" J. W. White	
54	Harnett	Oct. 16, 1903	" M. W. Harper	" O. L. Denning	Dec. 26, 1903	" M. W. Harper	" O. L. Denuing.
55	Yadkin	Dec. 7, 1903	" J. T. Burrus	" B. W. Fassett	Jan. 1, 1904	" J. T. Burris	" B. W. Fassett.
56	Onslow	Dec. 7, 1903	" W. J. Montford	" E. L. Cox	Jan. 4, 1904	" W. J. Montford	" E. L. Cox.
57	Wayne	Oct. 6, 1903	" M E. Robinson	" W. H. Cobb, Jr	Jan. 8, 1904	" M. E. Robinson	" W. H Cobb, Jr.
58	Richmond	Oct. 20, 1903	" J. M. Ledbetter	" A. C. Everett	Jan. 22, 1904	" J. M. Stancill	" A. C. Everett.
59	Davie	Sept. 24, 1903	" M.D. Kimborough	" W. C. Martin	Jan. 25, 1904	" M.D. Kimborough	" W. C. Martin.
60	Edgecombe	Oct. 22, 1903	" R. L. Savage	" S. N. Harrell	March 3, 1903	" R. L. Savage	" S. N. Harrell.
61	Craven	March 23, 1904	" Chas. Duffy	" R. DuVal Jones	March 30, 1903	" Chas. Duffy	" R. DuVal Jones.
62	Lincoln	Sept. 21. 1903	" L A. Crowell	" J. S. Wise	March 31, 1903	" T. F. Costner	" L. A. Crowell.
63	Pender	March 20, 1904	" R. J. Williams	" W. H. Crowell	April 6, 1904	" R. J. Williams	" W. H. Crowell.
64	Hertford	March 29, 1904	" S. S. Daniels	" J. Rainey Parker	April 8 1904	" S. S. Daniels	" J. Rainey Parker.
65	New Hanover	——— 1867			April 20, 1904	" W. J. H. Bellamy	" Ed. Jenner Wood.
66	Montgomery	Nov. 22, 1903	" F. E. Asbury	" C B. Ingram	April 22, 1904	" F. E. Asbury	" C. B Ingram.
67	Randolph	Feb. 20, 1890	" W. A. Woolen	" C H. Lewis	April 23, 1904	" Sam'l. A. Henley	" C. C. Hubbard.
68	Martin	May, 1888	" H. I. Clark	" W. H. Harrell	May 7, 1904	" R. H. Hargrove	" W. H. Harrell.
69	Pasquotank - Camden-Dare	Nov. 14, 1887	" R. H McIntosh		May 9, 1904	" Wm. J. Lumsden	" H. D. Walker.
70	Currituck	May 16, 1904	" H. M. Shaw	" Stuart M. Mann	May 16, 1904	" H. M. Shaw	" Stuart W. Mann.
71	Perquimans	May 2, 1904	" Wm Riddick	" Robt. W. Smith	May 18, 1904	" Wm. Riddick	" Robt. W. Smith.
72	Watagua-Mitchell				May 18, 1904	" J. W. Jones	" McD. Little.

* Cumberland was organized in 1853, but all records destroyed.
† Halifax was organized previously but no records available.
‡ According to Report of Secretary of County Society to Sec'y. of State Society in the formal application for charter as a component county society Yet it is more than probable that in a few of the counties there were county medical societies of older origin.—J. H W.

Up to May 20th formal annual reports, with detailed statements as to membership on a specially-prepared blank, had been received from sixty-six of the above-named component societies, including seventy-two counties, as follows:

Name of Society.	Councillor's District.	Members in good Standing April 1st, 1904.	Legal Physicians residing in county not members of County Society April 1st, 1904.
Alamance	6	16	10
Yancey	10	3	0
McDowell	10	8	1
Iredell-Alexander	9	23	10
Forsythe	8	24	9
Davidson	9	15	1
Granville	6	10	4
Transylvania	10	11	0
Pitt	2	20	2
Franklin	6	12	2
Johnston	4	10	7
Ashe	8	10	3
Swain	10	6	0
Richmond	5	14	0
Burke	9	11	1
Cumberland	5	11	4
Madison	10	10	3
Scotland	5	10	0
Haywood	10	12	2
Rutherford	7	13	7
Caldwell	9	12	0
Rowan	9	30	2
Jackson	10	6	1
Moore	5	18	4
Anson	7	9	4
Vance	6	10	1
Lincoln	7	11	5
Davie	9	7	0
Mecklenburg	7	47	19
Catawba	9	19	5
Sampson	3	11	0
Buncombe	10	56	18
Nash	4	10	4
Orange	6	10	2
Columbus	3	18	2
Greene	4	6	2
Wake	6	53	2
Wayne	4	23	11
New Hanover	3	24	0
Union	7	16	5
Randolph	8	10	12
Cleveland	7	21	4
Stokes	8	15	3
Northampton	4	8	0
Caswell	6	10	0
Robeson	5	18	3
Guilford	8	41	10
Macon-Clay	10	5	5
Duplin	3	8	3
Halifax	4	8	5
Onslow	3	6	1
Hertford	2	6	1
Gaston	7	22	2
Beaufort	2	17	0
Henderson-Polk	10	9	0
Yadkin	8	10	4
Craven	2	9	3
Currituck	1	4	0
Pasquotank-Camden-Dare	1	12	7
Washington	1	6	6
Watagua-Mitchell	9		
		990	222

As will be noted from the above tabulation, the returns received to May 20th from sixty-six societies, including seventy-two counties, gives a total membership of 990 with only 222 other practicing physicians residing in these seventy-two counties and not in active affiliation with us. It is not predicting too much to say that with careful, kindly nursing the membership of the component County Societies we now have will be added to as time passes. In this connection I may be pardoned for suggesting that kindness and consideration will win over many of the men who at present are lukewarm and indifferent as to the matter of County Societies. This remark applies especially to the senior members of the profession, who, having lived, in so many instances, lives isolated from intimate contact with their fellow-doctors, look with critical eye on a plan which brings them close to each other once a month.

My correspondence has been very large during the year, far more extensive than I even dreamed it would be when I put my hand to the plow, but it has been a pleasure to me to feel that I was aiding in the prosecution of a work, the influence of which will be felt in North Carolina for the good of the medical profession long years after those of us who have been active in it will have passed away.

Within the past few months, since my mail has almost daily brought a letter from some doctor telling me of the marked promotion of friendly professional relations between the physicians of his town or county growing out of the social contact in the County Society, I have more than felt rewarded for the interest I have felt in the work.

In conclusion, I may add that a minor change or two in our Constitution and By-Laws has been suggested to me as possibly being worthy of consideration, but I have carefully considered the matter and I would not advise, in our present formative status, any changes at this session. We are doing well, as our splendid growth the past year and the magnificent attendance at this session (unprecedented as it is in the Society's history) attest, and I would only suggest to "let well enough alone."

Respectfully submitted,

J. Howell Way, *Secretary.*

The report of the Secretary elicited considerable discussion and enquiry from Drs. S. D. Booth, J. A. Burroughs, I. W. Faison, T. S. McMullan, T. F. Costner and others. After discussion of various features of the report it was, on motion of Dr. T. S. McMullan, seconded by Dr. J. A. Burroughs, adopted by the House and a rising vote of thanks tendered to the Secretary for his indefatigable work in promoting and extending the work of the Society.

On motion of Dr. Way the Council were also thanked most heartily for their excellent work in securing the organization of so large a portion of the counties during the first year of operation under the new plan.

Letters from Dr. Oscar McMullan, Councillor of the First District, and Dr. J. F. Highsmith, Councillor of the Fifth District, were read expressing their interest in the Society and reporting for their district, and expressing regret at their inability to be present.

Verbal reports were received from the following Councillors present: Drs. A. Anderson, E. C. Register, Thomas Anderson, F. H. Russell, James A. Burroughs, H. A. Royster, D. T. Tayloe. All expressed themselves as pleased with the work, and reported much interest manifested in most of the counties in the organization of the County Societies, and it was their conviction that the County Societies would be increased before another year had passed.

On motion of Dr. Burroughs, the action of the President and Secretary in issuing charters to the component County Medical Societies, as per report of the Secretary, was approved.

The Secretary reported from the general meeting the meeting of the Society in fifty-first annual meeting in the Senate chamber this morning, where the usual formal opening was held and the President's annual address was delivered before a very large audience of Raleigh citizens and the largest attendance of members of the profession and members of the Society in its past history.

On motion, the following Committee on President's Message was appointed: Drs. J. M. Parrott, J. F. Abel and C. M. Poole.

There being no further business, the matter of the appointment of the Committee on Nominations was called up and the President asked the pleasure of the House as to the method of appointing the committee.

Several motions, with various amendments, followed, provoking considerable discussion, ending in the adoption by the House of a motion instructing the members of this body from each district to get together in the hall and select their member of the committee and in ten minutes report back to the House. An informal recess was taken for this purpose, at the conclusion of which the following gentlemen were reported to the House as the selections from the ten districts for the Committee on Nominations, and on motion the report was adopted and the committee appointed as follows:

First District, Dr. T. S. McMullan.
Second District, Dr. S. S. Daniel.
Third District, Dr. F. H. Russell.
Fourth District, Dr. J. F. Miller.
Fifth District, Dr. A. C. Everett.
Sixth District, Dr. S. D. Booth.
Seventh District, Dr. S. S. Royster.
Eighth District, Dr. D. A. Stanton.
Ninth District, Dr. D. J. Hill.
Tenth District, Dr. J. Howell Way.

On motion, a recess was taken until 9:30 Wednesday morning.

WEDNESDAY MORNING, MAY 25, 1904.

The House called to order by President Weaver at the appointed hour.

Reports of committees being called for, the Committee on Nominations reported the following names for the various offices and committees of the Society for the ensuing term:

President, Dr. David T. Tayloe, Washington.
First Vice-President, Dr. C. A. Julian, Thomasville.
Second Vice-President, Dr. John T. Burrus, High Point.
Third Vice-President, Dr. I. W. Faison, Charlotte.

COUNCILLORS—THREE-YEAR TERM—

First District, Dr. Oscar McMullan, Elizabeth City.
Second District, Dr. S. S. Daniels, Winton.

Third District, Dr. Frank H. Russell, Wilmington.
Fourth District, Dr. Albert Anderson, Wilson.
Fifth District, Dr. J. F. Highsmith, Fayetteville.
Sixth District, Dr. Hubert A. Royster, Raleigh.
Seventh District, Dr. Edward C. Register, Charlotte.
Eighth District, Dr. H. S. Lott, Winston.
Ninth District, Dr. Thomas E. Anderson, Statesville.
Tenth District, Dr. James A. Burroughs, Asheville.

Orator, Dr. Chase P. Ambler, Asheville.
Essayist, Dr. John Hill Tucker, Henderson.
Leader of Debate, Dr. E. T. Dickenson, Wilson.
Committee on Scientific Work—Drs. J. Howell Way, R. H. Whitehead, D. J. Hill.
Committee on Public Policy and Legislation—Drs. R. H. Lewis, George G. Thomas, George W. Long, D. T. Tayloe, J. Howell Way.
Committee on Publication—Drs. J. Howell Way, George W. Pressley, H. McKee Tucker.
Committee on Obituaries—Drs. C. M. Poole, H. H. Harris, K. P. Battle, Jr.
Finance Committee—Drs. James A. Burroughs, Thomas E. Anderson, Frank Duffy.

On motion of Dr. J. M. Parrott the report was received and the Secretary instructed to cast the ballot of the Society for the adoption of the report as the choice of the body for officers and committees for the ensuing terms. The Secretary did so.

The Secretary reported to the Society that the Secretary of the American Medical Association had advised him of the ineligibility of Dr. Albert Anderson to represent this State Society in the House of Delegates, he having been a member of the American Medical Association less than two years at the time of his election at Hot Springs last year, and the President, declaring the position vacant, the Nominating Committee submitted the name of Dr. Hubert A. Royster as delegate for the unexpired term. The nomination was approved by the House, and he was declared elected.*

* At the annual meeting of the American Medical Association held in Atlantic City, June, 1904, Dr. Royster was not present, owing to illness in his family, and Dr. Albert Anderson being present he was admitted and seated as member of the House of Delegates along with the other member from North Carolina, J. Howell Way. Quite a number of members of our State Society attended the sessions including Drs. Jas. A. Burroughs, E. C. Register, J. A. Hodges, Fred K. Cooke, Clas. L. Minor, H. H. Briggs, Jno. W. Long, M. L. Stevens, E. R. Russell and others.

The Committee on Nominations recommended Greensboro as the place of meeting for 1905. Winston was also suggested. A vote being had, Greensboro was declared the place of meeting for the Society in 1905.

The Committee on Nominations named Dr. Charles Roberson, of Greensboro, as chairman of the Local Committee of Arrangements for the 1905 meeting. The nomination was approved, and Dr. Roberson declared elected.

The month of May was designated as the time for the meeting and the fixing of the exact date left to the Secretary of the Society and the local committee.

The Committee on Nominations also reported the following delegates to other Societies. On motion, the gentlemen named were declared elected to represent the Medical Society of the State of North Carolina as suggested by the committee:

To Virginia State Medical Society—Drs. J. A. Burroughs, S. D. Booth, H. W. Lewis.

To South Carolina State Medical Society—Drs. A. J. Crowell, W. J. McAnally, C. L. Pridgeon.

To Mississippi Valley Medical Association—Drs. H. B. Weaver, M. H. Fletcher, James A. Burroughs, D. A. Stanton.

The Council reported the name of Dr. R. L. Payne, of Norfolk, Va., for many years a resident of this State and an active worker of the State Medical Society, having served as Treasurer, Orator, member of Board of Medical Examiners and President of the Society (as well as in various minor positions), with honor to both the Society and himself. On motion, the recommendation of the Council was approved, and Dr. Payne declared elected an honorary member of the Medical Society of the State of North Carolina.

Dr. T. S. McMullan offered a resolution arranging for retaining upon the rolls of the State Society as members the names of gentlemen residing in counties where no County Medical Society had been organized who were members of

the State Society at the time of the adoption of the new Constitution and By-Laws at Hot Springs in 1903. A spirited and an interesting discussion ensued, participated in by Drs. Albert Anderson, James A. Burroughs, Thomas E. Anderson, H. W. Lewis, Thomas F. Costner, E. C. Register, J. F. Abel, Thomas S. McMullan, M. H. Fletcher, George W. Pressley, F. H. Russell, Hubert A. Royster, S. S. Royster, J. Howell Way and others of the House. Drs. L. J. Picot and P. J. Macon, of Warren county, by invitation also addressed the House. As a result of the extended discussion much valuable information showing the facts attending the appointment of the committee in 1902 which revised the Constitution, and the unanimous adoption, by the State Society without a dissenting vote of their report framing the present Constitution and By-Laws, at the last annual session of the Society at Hot Springs in 1903, facts relative to the greatly augmented attendance at this, the first, meeting of the Society under the new Constitution, the splendid growth of the County Society system, etc., were also brought out in the discussion, as a result of which the matter was finally, on motion of Dr. Way, laid on the table.

In the discussion it was pointed out that about eighty counties of the State were now completely, or partially, organized, and it was suggested (and the suggestion seemed to meet the hearty approval of the members) that the gentlemen of the profession in attendance at this meeting should, in conjunction with their remaining colleagues, perfect the organization of their counties and report formally to the Secretary and the Treasurer of the Society when their names could be enrolled prior to the appearance of the Transactions of the State Society for 1904.

A motion was made to elect Dr. J. C. Walton an honorary member of the Society, but not being in proper form, was declared out of order by the President, who suggested the matter be presented in proper form later.

On motion, a recess was taken until Thursday, the hour of meeting to be fixed later by the President and announced in the general meeting.

THURSDAY MORNING, MAY 26, 1904.

The House of Delegates met pursuant to the call of the President at 10:30 A. M.

Dr. G. T. Sikes, Treasurer, arose to a question of personal privilege, growing out of the refusal of a member to pay back dues to the Society.

The House of Delegates, by a unanimous vote, expressed its confidence in Dr. Sikes and its sincere appreciation of his earnest efforts for the advancement of the interests of the Society and its hearty approval of his course in the matter.

On motion of Dr. Way, it was ordered that the roster of Honorary Fellows and Honorary Members of the State Society be published, as heretofore, in the Transactions.

Dr. T. E. Anderson, on behalf of the Council, submitted, with their approval, the name of Dr. John C. Walton, formerly of Reidsville, N. C., and for many years an active member of this Society and also a faithful member of the State Board of Medical Examiners, now a citizen of Virginia. On motion, the nomination of the Council was approval by the House, and Dr. Walton declared elected an honorary member of the Medical Society of the State of North Carolina.

The following report of the Finance Committee was presented and adopted unanimously:

RALEIGH, N. C., May 26, 1904.

Your Committee on Finance beg to submit the following report: The Treasurer's Book shows he has collected during the past year $2,115.20. Accounts examined show disbursements to the amount of $1,336.39. Leaving a cash balance on hand of $1,904.32—this amount including cash balance on hand June 2, 1903, of $570.51. It

is to be noted there are as usual at the close of the year several outstanding unpaid bills which will materially reduce the cash on hand.

The per capita assessment as fixed by our laws is an annual payment of $2.00 for each member, due and payable through the Secretary of the County Societies, to the Treasurer of the State Society.

We recommend that the salary of the Secretary of the State Society in view of the greatly increased labors of the position incident to the enlarged duties of the office and the increased membership of the Society be increased to $300.00 per annum, and in doing this we desire to express our appreciation of the splendid work he is doing for the advancement of the best interests of the profession of the State, believing the increased salary falls far short of adequate compensation for the very efficient service rendered.

We commend the good work of our efficient Treasurer and recommend his salary be increased to $150.00 per annum.

(Signed) Thos. E. Anderson,
E. C. Register,
Jno. C. Rodman,
Committee.

Unanimously adopted.

Dr. C. M. Poole, chairman of the Obituary Committee, submitted the annual report of his committee, and after a brief discussion by Drs. Thomas E. Anderson, T. S. McMullan, T. F. Costner and J. Howell Way it was, on motion, received and referred to the general meeting to be read in open session before the entire Society.

A communication from Dr. H. S. Lott, of Winston, the esteemed Councillor of the Eighth District, was presented by the Secretary. In the letter Dr. Lott expressed his pleasure at having been able to serve the Society in securing the organization of a considerable portion of his district, and indicated his willingness to assist farther in this work, but declined a re-election to the place of Councillor.

On motion, his resignation was accepted, and on the nomination of the Committee on Nominations, Dr. David A. Stanton, of High Point, was unanimously elected Councillor of the Eighth District for the ensuing term of three years, vice Dr. Lott declined.

Dr. James M. Parrott, for the Committee on President's Message, presented the following:

We, your Committee appointed to consider the President's Address, beg leave to submit the following report:

After carefully considering the wise suggestions offered in this magnificent address we recommend—

First. That a vote of thanks is due and is hereby tendered to our distinguished President for his active efforts in the past as well as at the present time in being so instrumental in shaping the public and professional sentiment which brought about greater perfection in the laws of this State regulating the Practice of Medicine.

Second. We regard the suggestion as regards public sanatoria for the treatment of tuberculosis a wise one and would recommend that the matter be placed in the hands of the Committee on Public Policy and Legislation, and would urge them to take such steps to secure this end as they may deem best.

Third We heartily endorse the position taken by the President as regards the case of State v. Biggs, and to this end recommend that the Committee on Public Policy and Legislation be instructed to employ legal counsel whenever in their opinion the best interests of the profession demand it.

JAMES M. PARROTT,
C. M. POOLE,
J. F. ABEL,
Committee.

On motion, the report of the committee was received and adopted.

On motion of Dr. Way it was ordered that the Treasurer be requested to make a bond in some reliable bonding company as Treasurer of the Society in compliance with the Constitution, and that the expense of the same be charged to the general expense account, the bond to be made to the President of the Society as trustee.

There being no further business before the House, Dr. Way moved that the President appoint a committee of two members who should wait upon the general meeting and advise the Society that the House of Delegates having discharged the duties assigned to it under the Constitution for this session was now ready to adjourn and desired to proceed

in a body to the general meeting there to present for induction into office the President-elect for the ensuing term.

The motion was seconded and adopted and the Chair designated Drs. Thomas E. Anderson and R. H. Whitehead. These gentlemen retired to the place of the general meeting, and upon their return announced their duty performed and that the Society was ready to receive the President-elect. Thereupon President Weaver, with the committee and the President-elect heading the procession, marched to the hall of the general meeting where Dr. David T. Tayloe, of Washington, N. C., was duly installed as President of the Medical Society of the State of North Carolina, and the first annual session of the House of Delegates of the fifty-first meeting of the State Society was at an end.

HENRY BASCOM WEAVER, M. D., *President.*

J. HOWELL WAY, M. D., *Secretary.*

PROCEEDINGS OF THE CONJOINT SESSION

OF THE

MEDICAL SOCIETY OF NORTH CAROLINA

AND THE

NORTH CAROLINA STATE BOARD OF HEALTH,

Held on Wednesday, May 25, 1904,

AT RALEIGH, N. C.

At this meeting Dr. Francis Duffy presided over the conjoint session. Present, the members of the State Board of Health and the general meeting of the Medical Society.

Dr. Lewis: Mr. President and Gentlemen, I wish to express my gratitude for one encouraging feature to-day. It has been the custom for the Medical Society to promptly melt away at the mention of the joint session. It is doubly encouraging to us that this not been so marked as usual. I see before me a gratifying attendance. The annual report is as follows:

ANNUAL REPORT OF THE SECRETARY OF THE NORTH CAROLINA BOARD OF HEALTH, MAY 1, 1903—MAY 1, 1904.

As must always be the case, the work of your Secretary during the past year has been largely of the usual routine character, dealing with the common every-day affairs of sanitation. These, however, are none the less important because they are commonplace, as they practically cover the whole field of hygiene. But we have one entirely new subject as applying to our State of great interest and importance, viz:

UNCINARIASIS OR HOOKWORM DISEASE.

Inspired by the admirable address of Dr. Charles Wardell Stiles, Zoologist of the U. S. Public Health and Marine Hospital Service, at our last meeting at Hot Springs on the *Uncinaria Americana*, of which he was the discoverer, and its prevalence in our Southern States, I promptly set to work to interest our physicians in the sub-

ject. In several issues of the Bulletin the matter was called to their attention, a summary of Dr. Stiles' official report and other articles being printed, and the medical reader was urged to send specimens of fæces from suspected cases to our laboratory for diagnosis. The response to this, I regret to say, has been discouraging, as only thirty-two applications for the examination have been made during the year. This, however, does not present, by any means, all the work done in relation to the hookworm disease. Dr. W. S. Rankin, of Wake Forest, in the early fall offered to give a month of his time to the Board without charge, other than his actual expenses, in making a personal investigation, proposing to visit with his microscope the physicians in a number of our eastern counties and make the diagnosis for them on the spot. Authority was obtained by correspondence with the members of the Board to accept Dr. Rankin's offer. He began his investigation by a trip during Christmas week to Northampton and Edgecombe counties. The results were so meagre and discouraging, as will appear in his report, which he will read, that we agreed that it would not pay to continue the personal work, and the spring tour of three weeks was accordingly abandoned. He has, however, done other work on this line by correspondence and among the students of the college, as he will detail to you. The physical signs of uncinariasis are so striking and the diagnosis from the mere general appearance of a victim to it, taken together with his environment, is so easy, that I have no doubt the diagnosis has been made in many instances without resort to the microscope and the proper remedy administererd.

From the facts in our possession it is certain that uncinariasis is very prevalent in our State, and that it is not limited to the sandy section, as Stiles suggests. It deserves and should receive the careful attention of all practitioners. With the lights before me I would say unhesitatingly that every case of pronounced anæmia, especially in young persons living in the country, should be investigated with a special view to this very harmful intestinal parasite.

TUBERCULOSIS.

Tuberculosis continues our most fatal disease. Experience has demonstrated that much can be done for its prevention. We should therefore make an earnest effort to check its ravages as far as possible. I therefore bring the matter forward in order that it may be discussed in the conjoint session, so that we may have the benefit of the wisdom that is said to appertain to a multitude of counsellors.

The question of the prevention of tuberculosis is theoretically easy but practically most difficult, very much more so in our southern country than elsewhere on account of the large number of negroes. The infectious principle being existent only in sputum and other discharges from tuberculosis cases and in the infected

milk and meat of the lower animals, the thing to do, of course, is to destroy the sputum and prevent the sale and consumption of the tuberculous milk and meat. But *how* to accomplish this in actual practice to more than a most superficial extent is the question. The answer to this question is: By the thorough education of the public mind on the subject. So the practical problem is how to reach and influence the people, especially those having the disease and their immediate families who necessarily are in close and constant contact with them.

The first step in the solution of this problem is to locate the tuberculous patients. To accomplish this a few States and cities have resorted to legislation, requiring compulsory notification of tuberculosis as of other contagious diseases, so that the proper instructions may be given, inspections made and disinfection practised. This looks well on paper, and in large cities with thoroughly organized health and police departments and sufficient money to support them it is no doubt of much practical value. But in communities such as our State, the population of which is chiefly rural or resident in small cities, towns and villages without the full facilities for enforcement indicated, we cannot expect very much from this means. Especially is this true of the colored people. Their temperament, training, and environment make the solution of the problem in their case, to all intents and purposes, hopeless—for many years to come at any rate. And it is among them the disease is most prevalent, in the proportion of nearly three to one of the whites. That we cannot expect much is the more apparent when we call to mind the fact—the most discouraging fact—that a very large percentage of our physicians, although required to do so by law, will not report the more actively contagious diseases, such as scarlet fever, diphtheria and even small-pox, although the last named disease is, we believe, generally reported, but not so much because the law requires it as because the doctor wants to get rid of it. In the present state of public sentiment the indisposition to report tuberculosis will be much greater. At the same time it is desirable to have this done if it can be brought about. We are glad to say that our own city of Raleigh has enacted stringent legislation on this line, and the results will be watched with much interest, as it is the first movement in the State for compulsory notification, although anti-spitting ordinances have been in force several years, first in Asheville and later in Raleigh.

The methods usually resorted to for the education of public sentiment are tuberculosis congresses, the organization of anti-tuberculosis societies, public addresses, newspaper articles, the distribution to the individual of literature bearing on the subject and the establishment of special sanatoria. And this crusade has evidently borne fruit, for the decrease in the death-rate from tuberculosis has been

much more marked in the decade 1891-1900 than in any similar period previously. It is interesting to note, however, that the death-rate had been steadily diminishing in our larger cities before Koch's discovery of the bacillus and the demonstration of its contagious character. This is attributable to the improvement in the condition of the masses, better housing, better food, shorter hours of labor, the bicycle, athletic out-door games and the open-air life has come to be the vogue, thereby begetting greater resisting power. In these respects the advance has been much greater in the past decade than before and it is no doubt to no inconsiderable degree responsible for the decreased death-rate.

In the prevention of infection with the tubercle bacillus there are three principal objects to be sought: 1. The building up of greater resisting power in the individual. 2. The prevention as far as possible of the development of the bacilli. 3. The prevention of their distribution by their prompt destruction.

1. The dangers of the inspiration or ingestion of the bacilli are so great that it is a matter of doubt if any one living even a few years has not at one time or another taken them into his system, and yet only about one-ninth of the population, it is estimated, become fatally infected. This is due to the protective or resisting power inherent in every one to a greater or less extent. It is well established that this power to resist disease, to repel it entirely, or to overcome it, is greater in those who are in vigorous health. And this state of vigorous health is to be attained and preserved by living in accordance with the principles of hygiene, special stress being laid upon the paramount importance of pure, fresh air in the greatest abundance and at all times as near an out-door life as possible.

2. The prevention of the development of the bacilli is to be accomplished chiefly by an *early diagnosis*, when the disease is a pure tuberculosis and before the degenerative changes which constitute consumption have taken place. In the former the bacilli, being tied up in the unbroken tubercles, are not thrown off to any extent, while in the latter they are discharged in the sputum by the million. I would earnestly commend to your careful perusal a very able article, appearing originally in the New York *Medical Journal* and reprinted in our January Bulletin, on the subject of "The Relation of Early Diagnosis and Treatment to the Prevention of Tuberculosis," by Dr. Pottenger, President of the Anti-tuberculosis League of Southern California. He estimates that from 75 to 95 per cent of early cases with proper care should be cured, thereby preventing the development and distribution of the myriads upon myriads of bacilli from the same cases going on in the consumptive stage. Dr. Pottenger says that the expert in tuberculosis "should be able to determine the presence of the disease in the vast majority of cases before

bacilli appear in the sputum by the clinical history and physical examination. "If not by these," he goes on to add, "the tuberculin test can be used with confidence and safety." I beg to empnasize this last statement, for while I know that some object to the use of the tuberculin test in the human, claiming that it is sometimes harmful, the early diagnosis in the tuberculosis stage is of such overwhelming importance to both the patient and public, that inasmuch as it will enable the comparatively inexpert to make the diagnosis with certainty, the little risk, if there be any, should, in my judgment, be taken in doubtful cases. In any event, there can be no excuse for failure to resort at once to the microscope in every suspicious case for the detection of the bacilli upon their first appearance in the sputum, for the examination will be made free of charge for any physician applying to the laboratory of the Board of Health.

3. The prevention of the distribution of the bacilli must be accomplished by the patient himself. He can do this by the invariable habit of expectorating only into spittoons partially filled with some disinfectant, or into the fire, when in the house, and by the use of a pocket spittoon, bits of cloth or paper napkins (never the handkerchief) that can be burned, when out of doors. In a word, he must never let his sputum get away from him except into a disinfectant or the fire—never turn it loose to dry and assume the form of dust, especially in the house.

Having thus outlined the problem very inadequately, but as fully as the limits of this report and your time permits, we now come to the all-important question as to how we can best solve it.

The most conspicuous movement at present is towards the establishment by the State of special sanatoria for the tuberculous. Experience has demonstrated their great success, not only in curing the disease in its incipient stage—in over 50 per cent—but chiefly as educators of the people, for every patient returning to his home, thoroughly trained in the proper management of his case so as to prevent the reinfection of himself and the infection of others, is an educator for his neighborhood. But at present, and doubtless for some years to come, we can not hope for an appropriation by the State for this purpose. The other methods generally employed to educate the people and prevent the spread of disease by compulsory notification, distribution of literature, organization of societies, etc., have already been referred to, but it seems to me that the most effective method of reaching and attacking the very citadel of the enemy has never been sufficiently emphasized. This method I believe to be through the family physician. It is the family physician who first locates the case of tuberculosis; it is he who is sought for advice by the patient and his friends—no one can get so near to the problem as he, and no one can have such influence as he in securing the proper management of the case on the part of both the patient

and family. No health official nor organization can compare with him in the practical accomplishment of this work, if he can be induced to do it. Even if all the cases of the disease could be located and the proper instructions for prevention furnished—a manifest impossibility without his aid—they would make but little impression unless reinforced by his endorsement and earnest personal advice. He is the medium—and the only medium in the vast majority of cases—through whom the principles of preventive management can effectively reach the individual case. It would be superflous to argue this matter further. It is self-evident that the solution of this great and difficult problem, the greatest health problem of this or any age, turns chiefly on the attitude of the attending physician. The practical question before us, then, is: How can we arouse his interest and secure his cordial co-operation in the work. It is this particular question that I wish to hear discussed, that I may be helped in the performance of my official duty in the premises.

I would respectfully suggest that this body, composed of a very large proportion of the leading physicians of the State, put itself on record by adopting some such resolutions as the following:

WHEREAS, tuberculosis, of all diseases the most fatal, being the cause of death in about one-ninth of all who die, is a contagious, and, therefore, preventable, disease; and

WHEREAS, its prevention depends upon the early diagnosis, upon the strict observance of certain precautions in the relations between the patient and his associates, and upon a mode of life in accordance with the well-established principles of hygiene; and

WHEREAS, these matters come within the immediate jurisdiction of the attending physician, whose influence in securing their observance is far greater than all other influences combined: therefore be it

Resolved, That it is the sense of the Medical Society of the State of North Carolina and of the North Carolina Board of Health, in conjoint session assembled, that the spread of tuberculosis, the greatest scourge of mankind, can be most effectively prevented only with the active aid and cordial co-operation with the health authorities of the family physician.

Resolved, That not only every member of this body, but every physician in the State, is earnestly requested to use every effort, professional and personal, to promote this great work for humanity.

I would also suggest the propriety of adopting the following:

Resolved, That it is the sense of the State Board of Health and of the State Medical Society, in conjoint session assembled, that provision should be made in our hospitals for the insane and in the State's Prison, and in the county jails as far as practicable, for the

separation of tuberculous cases from the other inmates uninfected with the disease.

(Both resolutions were adopted unanimously).

SMALL-POX.

As was anticipated in our last report, small-pox has continued with us to an increased extent. The total number of cases during our small-pox year—May 1st to May 1st—is 5,370 as against 4,456 the year before. Of this number, 2,840 were white and 2,530 colored, with 35 and 34 deaths, respectively. It will be noted that for the first time the disease was more prevalent among the whites. The death-rate was the smallest in the history of the recent outbreak, being 1.23 per cent among the whites and 1.34 per cent among the colored. We have experienced the same difficulties in the management that have confronted us all along, due chiefly to the extreme mildness of the disease, although they have been somewhat less than heretofore.

At the request of the authorities of the city of Durham, who were experiencing much opposition to vaccination, I visited that city and addressed the people on the subject, with good results following.

The general small-pox outlook seems to be the same it was a year ago. It will continue from year to year until all the people have been successfully vaccinated or had the disease.

The following is a report in detail for the past year:

REPORT OF SMALL-POX FROM MAY, 1903, TO MAY, 1904.

Counties.	Number of Cases.			Number of Deaths.		
	White.	Colored.	Total.	White.	Colored.	Total.
Alamance	325	19	344	2		2
Alleghany	7		7			
Anson	6	148	154			
Ashe	200	16	216	4	1	5
Bertie		4	4		1	1
Bladen	24	1	25	2		2
Buncombe	43	19	62		3	3
Burke	7	5	12			
Cabarrus	36	1	37			
Caswell		82	82		2	2
Catawba	4		4			
Chatham	4	3	7			
Cherokee	28		28			
Chowan		1	1			
Cleveland	19	13	32			
Columbus	50	150	200		1	1
Cumberland	7	11	18			
Davidson	137	253	390	12	13	25
Davie	43	149	192			
Duplin	7	16	23			
Durham	40	300	340			
Edgecombe		9	9		2	2
Forsyth	47	53	100			
Gaston	35	16	51	3		3
Greene	2	35	37		2	2
Granville	6	13	19	2		2
Guilford	94	7	101			
Harnett	30		30			
Haywood	1		1			
Henderson	44	7	51			
Iredell	21	10	31			
Jackson	50		50			
Johnston	29	4	33			
McDowell	6	7	13			
Macon	40	10	50			
Madison	577	12	589			
Mecklenburg	6	15	21			
Montgomery		52	52			
Moore		1	1			
New Hanover	25	7	32			
Pender	1	7	8			
Perquimans		34	34			
Person		13	13			
Pitt	18	10	28			
Polk	7	28	35			
Randolph	28	3	31			
Richmond	27	34	61		1	1
Robeson	300	700	1,000	2	3	5
Rockingham	11	28	39			
Rowan	22	6	28	3		3
Rutherford	75		75			
Sampson		9	9			
Scotland	20	72	92			
Stanly	54		54			
Surry	49	4	53			
Swain	5	1	6			
Union	1	15	16			
Vance	42	1	43	3		3
Wake	4	12	16		1	1
Warren		5	5		4	4
Wayne	5	60	65			
Wilkes	102	36	138	2		2
Wilson	12	3	15			
Yadkin	27		27			
Yancey	30		30			
Total (in 65 counties)	2,840	2,530	5,370	35	34	69
Death rate, per cent				1.23	1.34	1.28

LABORATORY.

The following is the report of Dr. McCarthy, the Biologist, in detail of the work done for the Board of Health in the joint laboratory of the Department of Agriculture and the Board of Health, during the past year:

REPORT OF BIOLOGIST.

RALEIGH, May 5, 1904.

DR. RICHARD H. LEWIS, *Secretary North Carolina State Board of Health, Raleigh, N. C.*

DEAR SIR: I herewith submit a detailed report of the work done in the laboratory of the Board of Health during the twelve months included in the period from May 1, 1903, to April 30, 1904.

Total number of analyses and determinations 522

(These include the following samples, to-wit):

Public water supplies, monthly analyses	226
Analyses of water for physicians and health officers of counties	136
Examinations of sputum for physicians	57
Examinations of throat exudates, diphtheritic	53
Examinations of blood for plasmodium malariæ	18
Examinations of fæces for hook-worm	32
Total	522

The official examinations of public water supplies, under the law passed by the last Legislature, was begun in May, 1903.

No work was done in the laboratory during June. The full number of analyses required of the water companies under the law, was, therefore, eleven. This number was actually taken by only four companies, the others, by carelessness or other causes, falling below the requirements of the law, as shown by the annexed list:

Water Companies.	No. of Analyses Taken.	Water Companies.	No. of Analyses Taken.
Asheville	7	Raleigh	11
Concord	2	Reidsville	6
Charlotte	10	Rocky Mount	10
Dunn	1	Roxboro	6
Durham	10	Salem	9
Fayetteville (municipal)	8	Sanford	6
Fayetteville (old system)	0	Salisbury	10
Gastonia	9	Southern Pines	9
Goldsboro	10	Statesville	7
Greensboro	11	Tarboro	7
Henderson	8	Waynesville	6
Hendersonville	5	Washington	7
High Point	6	Wadesboro	3
Lumberton	6	Wilson	11
Monroe	8	Wilmington	11
New Bern	5	Winston	10

It must be said in justice to a few of these water companies that they began business during the year and could not, therefore, take the full number of analyses. The companies included in this latter category are Dunn, Hendersonville, Roxboro.

The law directs the Board of Health to make these analyses for a charge of $5 each. The usual cost of biological analyses of water is $10 each. When we began this work it was with the idea of making only the biological analyses in the laboratory of the Board of Health, the chemical analyses to be made, if possible, by the Department of Agriculture. But in fact the chemical work was not done except in a very irregular way. The Department of Agriculture is supported by a special tax levied upon the farmers of the State. It is supposed to devote its energies entirely to strictly agricultural work. What work the Department can do in other lines must depend upon the chemists being unengaged.

Water analyses, to be of much value, must be made regularly and systematically. It was, therefore, determined to do the chemical, as well as the biological, work in the laboratory of the Board of Health.

Soon after starting the chemical work we found that the larger part of the water companies were using too much alum in their filters and passing a part of this into the filtered water. The various companies were notified of this fact, and though there was at first some indignation expressed upon the imputation cast upon their waters, the companies soon improved their services and apparatus, so that the last, or April, series of analyses showed for the entire State but two supplies giving the reaction for alum, and both these for only very minute quantities. We are now fully justified in stating that no State or country anywhere has municipal water supplies superior to that of North Carolina—so far as regards freedom from pollution and injurious chemical compounds. There are thirty public water companies in the State. The water of all is very soft, and, with a few exceptions, is free from organic matter. All of the supplies derived from deep wells—in number, five—contain much dissolved earthy matter, and a few approach the quality of mineral waters. The deep waters are much harder than the surface waters.

The quality and safety of the public or municipal water supplies of the State is enormously superior to the average quality of the well waters sent to the laboratory. So great is the difference that the Biologist, as the result of four years' work in this line in North Carolina, is disposed to say that no incorporated town having 1,000 inhabitants can afford to permit its citizens to be supplied by private wells of the ordinary shallow type. The danger of typhoid hangs like the sword of Damocles over every community getting water from shallow wells. This danger is minimized for commu-

nities having a common supply which is closely guarded and the quality kept up to the standard by monthly analyses, such as our State law requires. It would, therefore, seem to be the duty of health officers and physicians to advise even small towns to abandon shallow private wells for a common public water supply.

As regards the samples of well water sent by physicians and County Health Superintendents, I am able to say that the average quality is superior to that received during the preceding year. There were fewer grossly polluted samples.

Of the fifty-seven samples of sputum received, about one-third were free from bacillus tuberculosis. The samples showing the bacillus came from different parts of the State, but chiefly from the Central and Piedmont regions.

Of diphtheritic exudates fifty-three were received, and all but two showed the bacillus. Nearly all samples of exudates were described by attending physicians as "tonsilitis" or "membraneous croup." Determinations of diphtheritic exudates were given precedence over all other lines of work in the laboratory, and the result is, in all cases where the physician can be reached by telegraph so transmitted, usually within one hour after sample reaches the laboratory. We could handle more of this class of work.

In examinations of blood for the malaria parasite, our facilities are not yet appreciated by the medical profession, or else the type of malaria found in North Carolina is easily diagnosed clinically. Only eighteen samples came in and the larger part of these were free from the germ. Only the tertian parasite has been found.

Of fæces we have received thirty-two samples and all but four contained the hookworm or its eggs. Most of the samples also showed large quantities of sand, indicating recent geophagism. The ages of the patients as given by physicians varied between 6 and 61 years. The larger part were under 25 years. The samples came from the following counties: Caldwell, Iredell, Granville, Johnston, New Hanover, Mecklenburg, Nash, Stokes and Wake.

During the past twelve months, as in the preceding period, a few applications were received for the Widal test for typhoid fever. At considerable trouble and expenditure of time and materials the Biologist stocked suitable cultures for this work at three different times in the two years, but the demand for this work proved too small to justify us in keeping up the cultures. The average demand is only about four per year. For the Widal test the culture of bacillus typhosus must be virulent and not over four or five months at longest from the spleen of a person dead of typhoid. The culture must also be transferred from tube to tube at least once a week, thus entailing much labor and consumption of material. With so much other work pressing upon the laboratory, we could

not afford for the small demand to keep up the typhoid culture as required, so at present we decline applications for the Widal test. The clinical alternative is usually between typhoid and malaria, and an examination of the blood by microscope will determine whether or not it is malaria.

A part of the Biologist's time is given to the work of the State Department of Agriculture. The work of the Board of Health alone is more than enough to occupy the entire time of one man. Therefore, until such time as the Legislature sees fit to provide for the entire support of the laboratory no further extension of the work is possible. Respectfully submitted,

GERALD MCCARTHY, D.Sc., *Biologist.*

It will be observed that many of the public water supplies have been quite derelict in the matter of monthly analyses. The act to protect water supplies requires every company selling water to the public to have an analysis made every month by the Board of Health, or in such laboratory as it may select, and yet in a total of 334 analyses required only 226 sent samples. I have tried faithfully to induce them by gentle means to send the samples regularly and promptly. My last letter has borne fruit, but there are some still that neglect this duty. While the law provides a penalty for failure to have the analyses made it is manifestly undesirable to resort to the courts. Public opinion is the best lever to employ, and if the physicians living in cities and towns having public supplies would interest themselves in the matter the companies would be more apt to respond. It is of great importance that they should, not only as a guarantee to consumers of the purity of the water sold them, but also as a means of support to the laboratory. Thanks to an enlightened, broad-minded Board of Agriculture and a Commissioner cordially in sympathy with this work for the people, we have been enabled to do the very creditable amount of work for the public health shown in the report, but times change and men change with them, and the support of the laboratory is extremely precarious. It should be sustained by a direct appropriation by the State for the purpose, and it is to be hoped that it may be made by the next Legislature.

While Dr. McCarthy, having no assistance, could hardly do more work than he has done, still it is discouraging to note how comparatively few of our physicians avail themselves of the privileges offered free of cost beyond a few cents of postage. The number, however, is growing and will, no doubt, increase more and more as time passes.

In conclusion, I appeal to the members of our noble profession to lend their interested support in this great work in which we are engaged. While some are disposed to sneer, and while it must be

admitted that the spirit of commercialism which pervades all callings at the present time has not left us untouched, it still remains true that, excepting, perhaps, the sacred ministry, there is no body of men whose hearts are so open to the cry of distress or whose minds and hands are so ready to administer to its relief without pecuniary reward as the physicians of our country. It is a noble profession, and on the principle of *noblesse oblige* it is the duty of every physician, and should be his pleasure, not only to cure disease and suffering, but also to aid in their prevention.

The Doctor also offered a set of resolutions in his paper.

CHAIRMAN: The report is before the house. Any discussion of it?

DR. STEPHENS: I want to say just one word as to tuberculosis. The worthy Secretary, in calling attention to the prevention of tuberculosis, speaks of education of the laity in regard to preventative measures. These things are matters of importance, but there is one thing even greater—the educating of the family physician in those things which are necessary to make early diagnosis. If the family physician is qualified to do this the education of the laity will follow. The family physician needs to have impressed upon him the fact that it is his duty to examine the sputum of a patient having a cough of more than one week. It is his duty to examine the chest carefully in every case of declining health and not let false ideas of modesty stand in the way. It is his duty to see that an examination is made. I would also suggest that the figures mentioned in the resolutions suggested by our worthy Secretary be changed to this effect. He mentions the fact that one-seventh of the deaths is due to tuberculosis. Our last census makes it between one-ninth and one-tenth, and the last census of our own State gives the figures as 11.15-100 per cent of the total mortality of the State.

DR. ————: I wish to call attention to the fact that something should be done for the prevention of infection in the public institutions. This is a crying need and one in which people of the State and the physicians should be in-

terested. It is appalling to see the number of necessity infected in the public hospitals.

Dr. Paquin: It is rather a source of congratulation to me that our Secretary has so emphasized the matter to which I called the attention of the Society on yesterday. It is the most important subject in the domain of medicine to-day. It is true that prevention is the key to the situation. The practical solution of this question is the great desideratum in our State. How shall we succeed in combatting this enemy? As I said on yesterday, let every man of you constitute himself a committee of one to go home and teach the community at large how to prevent, and himself how to diagnose, the disease. A great many physicians fold their arms and say they can not diagnose that disease. They say, "What can't be cured must be endured." The microscope is only confirmatory of the opening symptoms of the disease. There are signs and symptoms by which the ordinary physician can diagnose the disease in its early stages. What are they? Physical examination of the chest, the temperature and tuberculine test. By these three methods you can tell whether the disease is tuberculosis or consumption. Let us go home and perfect these methods. It is useless for me to go into details. If you will make a diagnosis early while yet in its incipiency, this cruel disease will not carry so many to an untimely grave, and prevent the infection being distributed in different portions of the country. Therefore, in view of this, I move that we adopt the resolutions as suggested by our worthy Secretary. Now, gentlemen, I move for the adoption of these resolutions as a whole, unless some one calls for them separately. The motion was carried.

Dr. Lewis: There is a fault with a great many of us—that of being a little too kind-hearted sometimes and of not being perfectly candid in informing the patient or family that it is a case of tuberculosis. It is a very painful thing to do to tell the patient or family that it is a case of tuberculosis,

and it is important that they should know and take necessary steps to cure it.

CHAIRMAN: Any further discussion?

DR. FAISON: I think it is right to make a diagnosis early. I think a law should be passed preventing any one having tuberculosis from coming within our borders.

DR. LEWIS: I think it would be helpful when the Legislature meets if a resolution should be adopted by this body for an appropriation by the State for a biological laboratory. I think it would be helpful to us.

DR. IVEY: I move that this body ask the Committee on Legislation to approach the coming Legislature in reference to that point.

The motion was made and carried.

DR. LEWIS: I have not received the advice I want—the best practical method of reaching the family physician. You are all family physicians. You can tell me very much better than I can how to reach yourselves. Make me some suggestion by which I can reach the profession and I will be very much obliged. How would a personal letter with a two-cent stamp on it do? Leave off the heading of "Board of Health." Have it directed by a lady and it would be opened and read.

DR. STANCILL: I would like to suggest an evangelist from the State Board of Health making a visit to the family physicians. In the long run it would pay.

DR. LEWIS: I thought that idea was ventilated some years ago. If we could get the State to appropriate for an evangelist it would be the best plan, but it is impracticable.

DR. ROBERTS: There are in every county men who are competent to write up these subjects. Dr. Lewis is acquainted with the medical profession, and he knows who to apply to in each county. Let us ask each physician in each county to write up on these subjects which he wants investigated. I know it would not be successful in every case, but it will accomplish something. I think a great deal can be

done through the County Medical Societies, and if you reach one in ten you have done something. * * * It is only by line upon line, precept upon precept, that you can do anything along this line.

Dr. ————: I think if we could get the public interested it would be a good thing. I think that if a compend upon this subject were sent to each physician in the State it would be a good thing. * * * There is an acute symptom in tuberculosis. I will speak of it. It is not every physician throughout the land that has a microscope. It is a pity we did not have. I have always been careful in my practice to notice the fingers in tuberculosis, especially where it is hereditary. I notice the hectic flushes, the perspiration. By these alone I have made a diagnosis of this disease. There is pain in the clavicular region, and this pain is made worse by walking upstairs.

Dr. Lewis: It is the intention to put literature on this subject in the letter to the physician.

Dr. ————: We are better prepared than ever to cope with this disease. We have County Societies in every State, and with the assistance of the State Board of Health in sending literature and letters to the physicians in the county and waking them up to the importance of this subject, this matter may be worked out at home in the County Medical Societies. There is no remedy for the prevention of tuberculosis unless it commences at home among the people and among the doctors—the doctors that go in and out among the families. The Society should select some man to write and read a paper and work an interest in the County Medical Societies.

Chairman: We have the report of the Secretary that requires adoption.

Motion was made to adopt the Secretary's report. Motion carried.

Motion was made for adjournment of the conjoint session. Motion carried, and the conjoint session was adjourned.

FORTY-SECOND ANNUAL MEETING

OF THE

BOARD OF MEDICAL EXAMINERS

OF THE

STATE OF NORTH CAROLINA.

The Board met at Raleigh, N. C., on Wednesday, May 18, 1904, the following members being present:

Dr. M. H. Fletcher, Asheville, President.
Dr. J. M. Parrott, Kinston.
Dr. J. T. J. Battle, Greensboro.
Dr. A. A. Kent, Lenoir.
Dr. F. H. Russell, Wilmington.
Dr. Charles O'H. Laughinghouse, Greenville.
Dr. George W. Pressley, Charlotte, Secretary.

The registration books were opened at 2 p. m. and 97 applicants were enrolled from 32 different colleges.

The examination began Thursday morning at 9 a. m. and two were held each day at 9 a. m. and 3 p. m. except Sabbath until the seven branches were completed. The examination on Anatomy under Dr. Parrott was supplemented by practical work with the microscope.

In Obstetrics, under Dr. Laughinghouse, practical work on the manikin was a part of the examination.

After a thorough examination of all the papers it was found that 75 had passed, 3 withdrawn, and 19 made less than 80.

The following were granted licenses:

John H. Martin, Poindexter.
William T. Moore, Vultare.
Richard N. Littlejohn, Charlotte.
Albert D. Edwards, North Wilkesboro.
Richard B. C. Lamb, Elizabeth City.
Everett A. Lockett, Winston-Salem.
John Lawrence Nicholson, Washington.
John William McGehee, Madison.

Julian G. Busby, Salisbury.
Calvin S. Hicks, Durham.
Nathaniel A. Orr, Charlotte.
Arthur W. Greene, Powellsville.
John Q. Myers, Wilkesboro.
Thomas H. Wright, Charlotte.
William P. Simpson, Wilson.
Wade H. Anderson, Wilson.
Caroline J. Young-High, Southern Pines.
William N. Dalton, Danbury.
William M. Strong, Charlotte.
Arthur E. Billings, Charlotte.
Leighton W. Hovis, Charlotte.
Thomas F. Reynolds, Leicester.
John B. Gibbs, Burnville.
Robert H. Bradford, Charlotte.
Henry C. Salmons, Buck Shoals.
H. H. Garner, Asheville.
Earl H. Lyon, Stern.
Alvon A. Nichols, Painter.
Joseph B. Riddle, Bridgewater.
Charles E. McLean, Gastonia.
William I. Taylor, Howell's Store.
John O. Plummer (Col.), Warrenton.
Ernest L. Hoffler (Col.), Greenville.
Joseph B. Phillips, Jr., Spring Hope.
James I. Bradshaw, Relief.
Arthur P. Willis, Cana.
George M. Chapman, Logan's Store.
Robert M. Andrews, Cliffdale.
Dugald C. McIntyre, Lumberton.
Richard E. Windley, Lake Landing.
Walter H. Everhart, Newton.
Jasper L. Beam, Crouse.
James F. Laton, Albemarle.
Campbell A. Baird, Bethel Hill.
Celus G. Ferebee, Shiloh.
Eulalie M. Abbott, High Point.
James T. Justice, Jacksonville.
James T. Davis, Gumberry.
James J. Stewart, Newton.
William F. Smith, Salisbury.
Hugh E. Bowman, Davidson.
Hugh R. Thompson, Reidsville.
Frank L. Sharpe, Statesville.
Marshall C. Guthrie, Raleigh.

William A. Bradsher, Roxboro.
John H. Stanly, Raleigh.
A. McNiel Blair, Southern Pines.
Robert Lowry, County Line.
Jesse E. Ward, Wilson.
Doctrine H. Reed, Washington.
Bedford E. Love, Leasburg.
Charles C. Orr, Charlotte.
Landers P. J. Lee, Dunn.
John H. Borneman, Wilmington.
John R. Williams, Asheville.
May S. Miles, Greensboro.
Benjamin G. Allen, Henderson.
Thomas J. Holt, Smithfield.
William H. Coffman, Asheville.
Paul V. Anderson, Wilson.
Charles A. Woodard, Wilson.
Robert J. Orr, Brevard.
Sheridan C. Highway, Murphy.
Otho C. Wright, Jarratt's, Va.

The highest work, 94 1-7, was made by Dr. Marshall C. Guthrie, of Raleigh; the next, 92½, was made by Dr. Hugh E. Bowman, of Davidson; the third, 92 2-7, by Dr. Wm. A. Bradsher, of Roxboro.

The following were the questions asked on the several branches:

Physiology and Hygiene.

BY M. H. FLETCHER, M.D., ASHEVILLE, N. C.

1. Give histological structure of blood. What are its functions?
2. Describe briefly the lymphatic system.
3. Describe the salivary glands; give anatomical relations; nerve supply. Name their ducts.
4. What type of a gland is the kidney? Describe a malpigian body.
5. Describe the thyroid glands. Give function of the thyroids and parathyroids.
6. Name the classes of substances which all food stuffs contain. What are proteids?
7. Name products removed from the system by bile. As a digestive secretion what are its most important functions?
8. Give origin, course and distribution of the tenth cranial or pneumogastric nerve. Effects of section of both vagi nerves?

9. (a) What are the effects of paralysis of the seventh cranial nerve on the special senses of sight, smell and taste? (b) Name the internal layer of the retina.

10. Define disinfectants, antiseptics, deodorants, and name the principal ones of each class.

Chemistry.

BY GEORGE W. PRESSLY, M.D., CHARLOTTE, N. C.

1. Give the composition of the atmosphere.
2. What is meant by the boiling point of a liquid?
3. Give symbol and atomic weight of calcium; carbon; phosphorus and sulphur.
4. Give formula for nitrate of silver; for glycerin.
5. How is chloroform tested for impurities?
6. Give a test for bile in the urine.
7. What is the chemical nature of urinary calculi?
8. Convert one kilogram to pounds, avoirdupois.
9. What is green soap?
10. What is the specific gravity of pure ether?

Obstetrics, Gynecology and Diseases of Children.

BY CHARLES O'H. LAUGHINGHOUSE, M.D., GREENVILLE, N. C.

OBSTETRICS.

1. Give indications for forceps.
2. Give indications for version.
3. Give varieties of placenta prævia.
4. Define hourglass contraction.

GYNECOLOGY.

1. Give indications for curetting the uterus.
2. Give causes for amenorrhœa.
3. Give diagnosis of carcinoma of uterus.

DISEASES OF CHILDREN.

1. Give varieties of stomatitis.
2. Give etiology of enurisis.
3. Give sequelæ of measles.

Practice of Medicine.

BY A. A. KENT, M.D., LENOIR, N. C.

1. What is the duration of the period of incubation in diphtheria, parotitis, rubeola, scarlatina, typhoid fever, variola?

2. How soon after recovery, counting from first day of attack, would it be safe to the public to allow a patient recovering from scarlatina, rubeola, diphtheria or variola to go out of quarantine, and what preventive measures would be necessary?

3. Name the best means of disinfecting the dejecta in typhoid fever, and state how long its use should be continued, counting from first day of attack.

4. Explain briefly, giving cause, the difference in quotidian, tertian and quartan intermittent fever.

5. Write a single prescription for acute coryza. One for hysteria.

6. Define aneurism and arterio-sclerosis.

7. Define aphasia and give the lesions which cause it.

8. Name the point of maximum intensity and sound of heart with which you will hear the murmur (1) aortic stenosis; (2) aortic regurgitation; (3) mitral stenosis; (4) mitral regurgitation; (5) tricuspid rergurgitation.

9. Define gastralgia and write a single prescription for it.

10. Give diagnosis of the following case: Young man has been exposed to cold, onset sudden, chilliness, some nausea and vomiting, headache, restlessness, muscular twitching, pain and tenderness in the lumbar region, dyspnœa, pulse slow, hard and tense, temperature 102 degrees not constant, pallor and puffiness of eyelids and face, soon a swelling about the ankles and legs, urine scanty, smoky-red color, acid, specific gravity 1025, on boiling a thick, curdy precipitate forms.

Answer the questions briefly and to the point, but do not write everything you can think of about the diseases named.

Surgery.

BY FRANK H. RUSSELL, M.D., WILMINGTON, N. C.

1. (a) Define a fistula; (b) a sinus; (c) treatment.

2. Give the symptoms of septicæmia.

3. Give the symptoms and treatment of osteo-myelitis of the tibia.

4. What first aid would you render a patient who had received the following injuries: (a) Incised wound of the scalp? (b) Compound fracture of both bones of the leg—bleeding freely.

5. Give symptoms and treatment of fracture of clavicle.

6. Give symptoms of carcinoma of breast.

7. Give symptoms of carcinoma of uterus.

8. Give symptoms of internal hemorrhage.

9. Give differential diagnosis of hydrocele; treatment.

10. Give in detail the method of performing tracheotomy.

Anatomy.

BY JAMES M. PARROTT, M.D., KINSTON, N. C.

1. Describe the upper extremity of the ulna bone.

2. Describe the lower extremity of the tibia bone.

3. Describe the superficial palma arch and give its relations.

4. Name the coverings of a complete indirect inguinal hernia.

5. Name the structures divided in an amputation through the middle third of the thigh, and give the relations of the blood vessels at this point.

6. Through what structures would you cut in operating for appendicitis, the site of the incision being midway between the anterior superior process of the ilium and the umbilicus. Name the structures in the order in which they are divided?

7. Give the relations of the gall bladder and name its surgical landmark.

8. Give the boundaries of the superior carotid triangle ("triangle of election") and name its contents.

9. (a) Describe the fissure of sylvius; (b) locate Broca's convolution (the inferior frontal convolution).

10. What muscles or group of muscles are supplied by (1) the musculo-spiral nerve and its branches? (2) posterior tibial nerve and its branches?

11. Give the boundaries of the ischio-rectal fossa and describe its contents.

Pledge.

N. B.—Answer eight questions only.

Materia Medica and Therapeutics.

BY J. T. J. BATTLE, M.D., GREENSBORO, N. C.

1. Give therapeutic uses of quinine; explain its action in malaria and when it should be administered for its best effect.

2. Give dose of arsenious acid; its effect upon the system; therapeutic uses; treatment in cases of poisoning.

3. Mention four preparations of opium and two alkaloids; dose of each; its physiological effect; symptoms and treatment of toxic dose.

4. State the physiological actions of the bromides; dose of five preparations; therapeutic uses.

5. How does iodine effect the system? Mention four preparations and its therapeutic uses.

6. What is the common name for veratrum viride? Mention the preparations and dose of each, physiological actions and therapeutic uses.

7. What are the physiological actions of iron and its medicinal uses?

8. Give dose, physiological actions and therapeutic uses of salicylic acid.

9. Name the ingredients composing the following: Seidlitz powder, black wash, tartar emetic, carron oil, Bashan's mixture, C. C. pills, Donovan's solution, Fowler's solution. Give common name for each of the following: Ferri sulphas, Liq. Am. Acet., gossypium, oleum tiglii, massa cerulii, oleum terebinthinæ, potassi nitras.

10. What is an hypnotic? Sudorific? Collyrium? Clyster? Hæmostatic? Anodyne? Astringent? Galactagogue? Rubefacient? Emenagogue? Antiseptic? Mention one of each.

No.	Grade.	School.	College of Graduation.	Year of Graduation.
1	62½	R	Louisvil e Medical College	1898
2	87⅚	R	University of Nashville	1903
3	85¾	R	University of South	1904
4	80½	R	University of Maryland	1903
5	83⅜	R	University of Maryland	1902
6	80	R	University of Maryland	1904
7	84¾	R	University of Pennsylvania	1902
8	86¼	R	University of Maryland	1904
9	86¼	R	University of Maryland	1904
10	88⅚	R	University of Maryland	1904
11	91⅛	R	University of Maryland	1904
12	74¼	H	Cleveland Medical College	1898
13	80	R	University College of Medicine, Richmond	1904
14	80	R	University College of Medicine, Richmond	1904
15	80¼	R	North Carolina Medical College	1904
16	87¼	R	University of Virginia	1902
17	81¼	R	University of Virginia	1903
18	81	R	University of Virginia	1902
19	83¼	R	University of Michigan	1897
20	80¼	R	North Carolina Medical College	1904
21	88⅜	R	North Carolina Medical College	1904
22	90⅝	R	North Carolina Medical College	1904
23	85¼	R	North Carolina Medical College	1904
24	86¼	R	North Carolina Medical College	1904
25	86¼	R	North Carolina Medical College	1904
26	80	R	North Carolina Medical College	1904
27	86⅜	R	North Carolina Medical College	1904
28	Withdrew	R	Vanderbilt University	1901

29	70 3/4	R	University of Nashville	1904
30	82 5/7	R	University of Maryland	1902
31	35 1/7	R	Tennessee Medical College, Knoxville	1901
32	57 6/7	R	Leonard Medical College	1902
33	82 1/8	R	University of Maryland	1903
34	83 5/7	R	University of Nashville	1898
35	80	R	Vanderbilt University	1898
36	80	R	North Carolina Medical College	1903
37	80	R	North Carolina Medical College	1902
38	80	R	Leonard Medical College	1904
39	81 1/4	R	Leonard Medical College	1904
40	73 3/4	R	Leonard Medical College	1904
41	73 3/4	R	Howard University	1903
42	64 2/7	R	University College of Medicine, Richmond	1903
43	82 1/8	R	University of Maryland	1903
44	80	R	Tennessee Medical College	1901
45	80	R	University of North Carolina	1904
46	80	R	Grant University	1897
47	80	R	Memphis Hospital Medical College	1901
48	65 3/7	R	Grant University	1899
49	80	R	North Carolina Medical College	1904
50	73 3/4	R	University of Maryland	1903
51	81 3/7	R	University of Maryland	1903
52	83 3/4	R	University of Maryland	1903
53	84 3/4	R	University of Maryland	1903
54	74 3/4	R	University of South	1903
55	67	R	University of Maryland	1904
56	80	R	P. and S. Atlanta	1899
57	87 1/4	R	North Carolina Medical College	1904
58	81 2/7	H	Boston University	1899
59	68 5/7	R	Grant University	1903
60	80	R	North Carolina Medical College	1904
61	80	R	Medical College of Virginia	1902
62	84 1/4	R	North Carolina Medical College	1904

No	Grade.	School.	College of Graduation.	Year of Graduation.
63	71 2/7	R	North Carolina Medical College	1903
64	85	R	University College of Medicine, Richmond	1903
65	86 5/14	R	North Carolina Medical College	1904
66	82 5/14	R	North Carolina Medical College	1904
67	92 1/2	R	North Carolina Medical College	1904
68	68	R	Georgetown University	1897
69	72 5/7	R	University of Maryland	1895
70	80	R	University College of Medicine, Richmond	1902
71	80	R	University of North Carolina	1904
72	94 1/2	R	University of North Carolina	1904
73	92 2/7	R	University of North Carolina	1904
74	85 5/14	R	University of North Carolina	1904
75	80	R	Niagara University	1897
76	Withdrew	R	Maryland Medical College	1901
77	83 3/7	R	University of Maryland	1904
78	82 3/7	R	University of Maryland	1904
79	88 3/7	R	Columbian University	1901
80	84 3/7	R	University of Maryland	1904
81	65 6/7	R	University of Maryland	1904
82	85 3/7	R	University of Maryland	1904
83	80	R	Maryland Medical College	1904
84	85	R	Jefferson Medical College	1903
85	84 1/2	R	University of Michigan	1903
86	Withdrew	Osteop.	Boston Institute of Osteopathy	1901
87	46 2/7	R	Baltimore Medical College	1904
88	91 1/3	R	Laura Memorial Women Medical College	1898
89	84 4/7	R	Columbia University	1904
90	82 9/14	R	Medical College of Virginia	1904

91	55⅞	R	Atlanta Medical College	1898
92	80¼	R	P. and S., Baltimore	1884
93	85	R	University of Virginia	1904
94	85	R	University of Virginia	1904
95	80	R	Louisville Medical College	1893
96	80	R	Medical College of Ohio	1885
97	80	R	P. and S. Baltimore	1893

College of Graduation.	Applied	Passed.	Reject'd
University of Maryland	22	18	4
North Carolina Medical College	19	18	1
Leonard Medical College	4	2	2
University of North Carolina	4	4	
Louisville Medical College	2	1	1
University of Nashville	3	2	1
University of South	2	1	1
University of Pennsylvania	1	1	
Cleveland Medical College (Homo)	1		1
University College of Medicine, Richmond	5	4	1
University of Virginia	5	5	
University of Michigan	2	2	
Vanderbilt University	2	1	1*
Tennessee Medical College, Knoxville	2	1	1
Howard University	1		1
Grant University	3	1	2
Memphis Hospital Medical College,	1	1	
P. and S., Atlanta	1	1	
Medical College of Virginia	2	2	
Boston University (Homo)	1	1	
Georgetown University	1		1
Niagara University	1	1	

College of Graduation.	Applied	Passed.	Reject'd
Maryland Medical College	2	1	1*
Columbian University	1	1	
Jefferson Medical College	1	1	
Boston Institute of Osteopathy	1		1*
Baltimore Medical College	1		1
Laura Memorial Women College	1	1	
Columbia University, New York	1	1	
Atlanta Medical College	1		1
P. and S., Baltimore	2	2	
Medical College of Ohio	1	1	
Total	97	75	22

* Withdrew.

Dr. Chas. O'H. Laughinghouse, of Greenville, was elected President of the Board for the next two years, and the Secretary was continued.

A unanimous vote of thanks and appreciation was given to the retiring President, Dr. H. M. Fletcher, for his faithful and efficient service. The question of reciprocity was discussed and it was decided to be unwise and impractical in the present condition of our practice laws. The Board adjourned to meet in Greensboro on the Wednesday before the meeting of the State Medical Society in 1905.

G. W. Pressly, M.D.,
Secretary.

M. H. Fletcher, M.D.,
President.

Report of Obituary Committee.

Dr. ROBERT EDWARD JENKINS.

Dr. Robert Edward Jenkins died of typhoid fever at Belmont, N. C., January 9, 1904.

Dr. Jenkins was a young man in the profession, being a little less than twenty-eight years of age. He was an alumnus of the Kentucky School of Medicine. Immediately upon his return from school he located at Belmont, and in the short period of his practice had established for himself a fine reputation. Not only was he skilled in his professional work for one so young in his practice, but he carried warmth and cheer to the bedside of the sick. In the homes of his patients they knew him as "the beloved physician." He loved his profession and was on the eve of going North to take a post-graduate course, but He who doeth all things well bade him enter into the school where none shall ever have occasion to say "I am sick."

In September, 1897, he was married to Miss Emma Stowe, who survives him.

Dr. HARRY L. BAIRD.

Dr. Harry L. Baird died in Asheville, N. C., January 22, 1904, aged 37 years.

He was a graduate of Vanderbilt University and had practiced medicine for fourteen years, excepting the time he had traveled for his health. He was twice elected Secretary of the Buncombe County Medical Society, and for one year served as its President, being at that time the youngest man who had ever held that office, which fact shows the estimation in which he was held.

He was married in 1899 to Miss Wilford, of Kentucky.

Dr. E. S. FOSTER.

Dr. E. S. Foster, of Louisburg, Franklin county, N. C., died January 18, 1904, aged 57 years.

Dr. Foster was in failing health for some time, but was able to do some work, being Superintendent of Health of Franklin county at the time of his death. He was a graduate of Washington University, Baltimore, and practiced his profession for about thirty-five years.

Dr. JOHN McJ. STANSILL.

Dr. John McJ. Stansill, of Rockingham, N. C., died of pulmonary tuberculosis April, 1904.

Dr. Stansill graduated at the University of Maryland in 1872, and passed the Board of Medical Examiners at Wilmington in May, 1880.

In the death of Dr. Stansill the medical profession has sustained a loss that will be hard to fill, the community in which he lived its best loved citizen and the State a useful and most loyal son.

Dr. ABNER ALEXANDER.

Dr. Abner Alexander, of Columbia, N. C., died February 16, 1904, aged 60 years.

Dr. Alexander's most conspicuous labors in behalf of his profession were in the Legislature of North Carolina, where he served several terms with much credit to himself and to his profession. He exercised a most helpful influence in securing needed legislation along health lines while in the House, and was universally liked and respected by his colleagues in the Legislature. He was a practitioner of reputation and character in the community where he resided.

Dr. H. C. WILLIAMS.

Dr. H. C. Williams, of Sanford, N. C., died of pulmonary tuberculosis May 14, 1904, aged 41 years.

Dr. Williams graduated in medicine at the College of Physicians and Surgeons, of Baltimore, in 1882 and was licensed by the Board of this State and joined this Society the same year. He stood well in the profession and had a fondness for surgery, in which branch he was successful. He was a member of his local society and was an ardent supporter of all matters of interest that came before that body.

Dr. R. E. ZACHARY.

Dr. R. E. Zachary, the subject of this sketch, was born in Transylvania county, this State, in the year 1876. His father, Jonathan Zachary, was a prosperous and intelligent farmer, who reared a large family at the old homestead among the everlasting hills. Dr. Zachary received his preparatory education in the schools around the farm. He was loved and admired as a boy by all who knew him. After finishing his academical studies he entered the University at Chapel Hill, where he graduated in 1895 with the degree of Bachelor of Arts. At college he was esteemed for his urban deportment, kindly disposition and studious habits. Possibly no student there had more friends than he. After finishing his course at the University he entered the Medical Department there and graduated with distinction in the spring of 1897, receiving the highest mark of his class in anatomy.

In the month of June, following his graduation, he went before the Medical Board of Examiners at Morehead City and stood among the foremost of the doctors who became licentiates at that meeting of the North Carolina Medical Society, and enrolled himself a member of the Society immediately thereafter.

Having won the highest mark in anatomy before the Board of Examiners that distinguished honor entitled him to the position of resident physician of the Wilmington City Hospital, which he assumed in the following month of July. For eighteen months he lent his best energies to the success of the hospital, and resigned to take up the arduous duties of a general practitioner in his adopted city. The experience gained at the hospital eminently fitted him for his life's work, upon which he entered with an abiding faith and a determination to succeed. His devotion to duty, gentle but dignified deportment, and high moral character soon established for him a warm place in the hearts of the good people of Wilmington. He rose steadily as the months glided by, and at his death, which occurred in his twenty-eighth year, the cause being appendicitis, no young man stood higher in the community than he. His practice was large and increasing.

The poor never had a warmer, more sympathetic friend. When Dr. Hoge, rector of St. James Episcopal church, came to Wilmington, Dr. Zachary, a member of that church, went to see him and before leaving said to him, in substance: Whenever you know of the poor being sick and I can be of service do not hesitate to call upon me. I shall be glad to render the needy ones whatever assistance I can. An hour before he died he said: "Don't hold me; let me go; I must see the patient," showing that even when the "last clear call" came for him he was still trying to obey a pure conscience. While sick at the hospital the 'phones were kept busy with anxious inquiries for the welfare of the young man, and many friends called at the institution to see him and proffer assistance. Few men die so young and at the same time so honored and beloved. Those who knew him best loved him most.

He was an esteemed member of several brotherhoods, a member of the Wilmington Medical and the North Carolina Medical Societies.

At the funeral services Dr. Hoge diverted from his usual custom of not eulogizing the dead and spoke feelingly and eloquently of the deceased. The Wilmington Medical Society attended his funeral in a body, together with a large concourse of citizens, and the floral offerings were numerous and beautiful. Peace to his ashes.

Dr. JOHN WESLEY JONES.

Dr. John Wesley Jones, Tarboro, N. C., was born in Edgecombe county, N. C., September 31, 1831. Having received his preparatory education at the Louisburg Academy and at the University of North Carolina, he entered the Medical Department of the University of Pennsylvania, whence he graduated in medicine in March, 1857. After graduation he spent a year and a half in Europe in professional study and upon returning to America established himself in

Tarboro, N. C., where he engaged in a general practice, but gave special attention to surgery and to diseases of women. While in Paris he was a member of the American Medical Society of that city. He was President of the North Carolina Medical Society and was for years a corresponding member of the Boston Gynæcological Society. He was elected examiner on anatomy on the North Carolina Medical Examining Board in May, 1872, for a term of six years. He was for several years President of the State Board of Health. His publications have been confined to contributions for the North Carolina Medical Society, and include operations for stone vesico-vaginal, fistula, etc.; also contributions to the *Reconstructed Farmer*, an agricultural journal, to which he served as horticultural editor.

During the late war between the States he served as assistant surgeon in the Confederate army, being for two years medical purveyor and for the remaining period on duty in hospitals and on medical examining boards.

He was married to Miss Eugenia Helen Jeffreys, of Franklin county, on the 8th day of November, 1860.

When Dr. Jones had served his country with fidelity in war and in peace, and his patrons zealously in emergency and in the social circles the Great Head bade him it is enough. He died in Tarboro, N. C., on the 20th day of January, 1904.

Dr. W. W. CLARK.

Dr. W. W. Clark, a practitioner of medicine, died at Old Fort, N. C., February 14, 1904.

He studied medicine and graduated from the Jefferson Medical College in 1887 and was licensed the same year in North Carolina. He was for some time located at Clyde, N. C.; later at Bryson City, N. C., and several years ago removed to Old Fort, where he died.

Dr. JOHN ANDERSON WATSON.

Dr. John Anderson Watson, of Asheville, N. C., died November 5, 1902, being in his fifty-third year. He was for years a member of the Buncombe County Medical Society and once served as President of that body.

Dr. Watson was a man of culture and of courage. He possessed an abundance of knowledge on all branches, but in the diseases of women he had achieved pre-eminence and was recognized as one of the skilled gyneacologists of North Carolina. But the superiority in the chosen branch of his profession was not attained by Dr. Watson without the hardest sort of work and the most intense and constant application.

Although his natural aptitude for this special field of study and

work was pronounced it was only the unremitting labor of a lifetime that won for him the laurel crown of success. Starting out upon his career with all the clog and drawback or poverty to discourage and dishearten him he forged steadily ahead and took no step backward.

Dr. Watson enjoyed the happy mingling of medical knowledge and manual skill so indispensable to the successful gynaecologist; and, the wonderful and permanent cures he effected are the best tribute to his skill and ability. He was a good citizen, alive and progressive, helping in all ways the advancement and upbuilding of the community in which he lived, and in the death of Dr. Watson the medical profession sustained a loss that is wellnigh irreparable.

C. M. Poole,
H. H. Harris,
K. P. Battle, Jr.

Medical Society of North Carolina—President's Address.

BY H. B WEAVER, M D , ASHEVILLE, N C.

Fellow-members of the Medical Society of the State of North Carolina:

I appreciate with much gratitude your kind partiality in electing me to the office of president, and especially am I more grateful when I consider with what unanimity this honor was conferred upon me. I only ask now your indulgence and patience while I endeavor to perform the duties of this office.

The recurrence of anniversaries, or of longer periods of time, naturally refreshes the recollection and deepens the impression with which they are historically connected. Once more, for the tenth time, we have met in this grand old historic city to celebrate, in fact, our semi-centennial of existence, there having occurred twelve annual meetings up to the beginning of our Civil War, and this makes the 38th anniversary since that period.

We should congratulate ourselves in having the pleasure of meeting in a community like Raleigh, which has always had the enviable reputation of being the most generous host, producing the most gallant knights and certainly possessing the most beautiful women. It is a city noted for its conservatism, for its patriotism, and for its erudition. Here we find that spirit of the old South, if you please, still pervading her citizenship in all its pristine purity. A spirit whose highest aim is the conservation of those ideal virtues of simple honesty, learning and gentility, the most precious boons, which are the bulwarks of the manhood and womanhood of this Southland. These characteristics are in sharp contrast with that strenuous life of commercialism which

characterizes some other sections of the country, whose citizens allow that morbific sentimentality of money-getting to dominate their thoughts and actions, and to subserve ulterior purposes. Your city is no less distinguished for its patriotism; for it has among its citizens representatives of those who were "first in war, first in peace," and now "in the hearts of their countrymen." With a peculiar veneration do we recall the names of a Wyatt, of a Bagley and a Shipp, who were first to lay upon the altar of their country their young lives as a sacrifice in defence of those principles which are dear to every American freeman. But we would be unjust to history if we failed to mention the names of Ruffin, of Pearson, of Badger, of Ashe, of Merrimon, and of Vance, whose lives and actions are a part of the woof and web of the body politic of this capital city. Their lives stand out in bold relief upon the horizon in the State's history. It was they who correctly interpreted those grand ideas of human liberty and who waded through seas of crimson gore to establish and perpetuate those institutions.

These are bright models for our youths to hold up to themselves and study to be what they behold.

In looking back through the last half of the nineteenth century, our minds rest on a period in which the birth of the most profound system of medical organization with which the world has since become familiar. We praise and venerate the names and work of the Hills, a Strudwick, a Williamson, a Dickson, a Johnson, a Thomas, and the Haywoods and their co-adjutors, who in their wisdom in 1849 organized the Medical Society of the State of North Carolina. To them we owe much for this rich heritage. Though crude and undigested in detail, the ideas which were evolved from the minds of those illustrous men are essentially the fundamental principles upon which rest to-day the whole plan of our reorganization. They, first of all in the United States, suggested the idea of the County Society as the unit of or-

ganization. They, first of all, conceived the idea of scientific qualification for the practice of medicine, and they, first of all, organized the first "Board of Medical Examiners" in America. Upon this tripod is based the whole system of medical organization, from the smallest County Society up to the American Medical Association. To each of them, the pioneers and the veterans, in medical progress in our beloved State, we should give the meed of praise and endeavor to emulate them as our worthy exemplars in our new and glorious work of reorganization.

Twenty years ago to-day we were assembled in this capitol, where a most serious problem confronted us. The standard of medical education was then at a low ebb. Charlatanism and quackery were rampant in the State. Any person whomsoever might practice medicine, without any previous scientific or practical qualification whatever. There was then no law for the punishment of incompetent practitioners, the only legal bar to practice being the inability to sue for and collect a bill without first having a license from the Board of Medical Examiners. At this juncture old Rip Van Winkle waked up, and we found ourselves face to face with this mighty problem, helpless as yet, but not hopeless. The profession of the State had become aroused and alarmed at the state of affairs then existing.

It was at this meeting, in 1884, that your humble speaker had the temerity to introduce the original resolution promulgating the idea of making it a criminal offense, and punishable as other misdemeanors, to practice medicine and surgery without a license from the State Board, and also to constitute a committee whose duty should be to pray our next Legislature for an amendment incorporating into the statutes of the State the misdemeanor clause. After a spirited debate, the resolution was passed, the committee was appointed, the law was enacted, and has been amended from time to time, until now it stands almost perfect, without a

rival in the United States. For the perfection of this law we can not fail to mention, with just pride, the names of Dr. Thomas F. Wood and Dr. Richard H. Lewis, and thank them for their valuable services as benefactors, in their long and ardous work, which they rendered to the whole State.

What has been the result of this legislation? This feature of the medical law soon became so popular that every State in the Union, with one or two exceptions, has adopted this idea and has incorporated the misdemeanor clause into the statutes of the respective States. In consequence the standard of requirements for license has been raised, which in turn has had the effect to heighten the standard of medical education throughout the whole land, and instead of two courses of lectures of three months each, as of old, we now have in most schools four years' courses with six months in each year; nor is this all; quackery is almost annihilated, incompetency has decreased an hundred fold; the profession at large are more deeply rooted in the fundamental principles of the science and art of medicine; the public health has thrown around it a better safeguard and the Commonwealth in general are the happy recipients. Notwithstanding the temporary check which the cause of medical progress has sustained from the adverse opinion of our chief justice, in his effort to define the practice of medicine, yet the original law still stands, in full force, unscathed, immovable, and as immutable as the rocks of Gibraltar!

It may be at this time there is no law nor reason for belief that the practice of osteopathy is no more, in part, the practice of medicine than "two and two make five," and that "all the law can do is to regulate and safeguard the use of powerful and dangerous remedies like the knife and drugs." but can not safeguard an ignorant and dangerous animal, yet the time must and will soon come when every person, of whatever creed of pathy, shall be in the language of Lord Coke, "groundly learned and deeply studied in the different

branches of the science of medicine, before he shall be intrusted in any manner with the health and lives of the inhabitants of North Carolina."

We frequently see in the public prints of the day complaints of judicial legislation. It is said that this is a growing and great evil, and I am justified in expressing the opinion that the Supreme Court, in Biggs' case, undertook not so much the exercise of an unquestioned judicial function by declaring the law in respect of the Act of 1903, but the legislative power to repeal it. I know many lawyers of ability in the State who believe the decision in Biggs was erroneous. In conversation upon this subject with one of these lawyers, whose ability as a jurist is unquestioned, he said: "In State vs. Call, 121 N. C., pages 643, 646, the Supreme Court has said: 'It is not to be questioned that the law-making power of this State has the right to require an examination and certificate as to the competency of persons desirous to practice law or medicine, * * * or dentistry, * * * to teach, to be druggists, pilots, engineers, or exercise other callings, whether skilled trades or professions, affecting the public, and which require skill and proficiency.' The court had before it the question of the constitutionality of Sections 3,122 and 3,132 of The Code, as amended by Chapter 117, Laws of 1885, and other laws. By the Act of 1885 it is provided that 'Any person who should begin the practice of medicine or surgery, for fee or reward, without first having obtained a license from said Board of Examiners shall be guilty of a misdemeanor,' etc. This law was held to be valid and constitutional. In 1903 the Legislature passed another Act, enlarging the class required to obtain a license. It seems to me there can be no doubt that Biggs belonged to the class required to obtain a license from the Board of Medical Examiners, and as he had no license, he was guilty of a violation of the law.

"The chief purpose of the Act of 1903 was not to give

to the phrase 'practice of medicine and surgery' a broader signification than it had before the Act, but to require persons pursuing certain 'callings' to stand the prescribed examination and not undertake to practice their 'callings' requiring skill until they obtained a license from the Examining Board. What difference can it make what other words might have been used to make the intention of the Legislature plain so long as those which they did use made it plain? No one will deny that Biggs was exercising a 'calling' which required skill, a 'calling' in which a knowledge of anatomy, physiology and hygiene were indispensable to its successful prosecution. If this be true, then, unless the decision of the court in State vs. Call was wrong, the Legislature had the power to require all persons engaged in the 'calling' or profession in which Biggs was engaged to obtain a license from the Board of Examiners.

"The Act of 1903 required that all persons engaged 'in the management, for fee or reward, of any case of disease, physical or mental, real or imaginary, with or without drugs, surgical or mechanical appliances, or by any other method whatsoever,' to stand examination and obtain a license from the Board of Examiners. Beyond all question, this language is broad enough to include Biggs, who was in the 'calling' of administering 'massage, baths and physical culture, manipulation of the muscles, bones, spine and solar plexus, etc., and advising his patients what to eat and what not to eat.' This unquestionably required skill and learning which I have already alluded to. I am unable to see that the Act of 1903 is less effective because it provides that the expression 'practice of medicine and surgery' shall be construed to mean 'the mangagement for fee or reward of any cases of disease,' etc. I believe the Legislature had the power to make such a provision, and that it is valid, but whether it be valid or not, there is enough in the Act to show a clear purpose of the Legislature to require an examination and a license. All

that is said in the opinion in State vs. Biggs about fee or reward applies as well to the Act of 1885 as to the Act of 1903. Any kind of a doctor can practice his profession without a license if he charges no 'fee or reward.'

"Whether the particular case of State vs. Biggs was properly decided or not, I do not undertake to say, but I have no hesitation in saying that, in my opinion, the Act of 1903 embraced the calling or business which Biggs was practicing, and that the Act is valid unless the case of State vs. Call was wrongly decided."

In this view of the case, I am pursuaded that the great medical profession of this State can well learn "to labor and to wait," holding fast to those principles of "equal rights to all and special privileges to none," resenting in disdain the idea that the amendment was "evidently drafted by promotors of the monopoly," and was conceived and drawn "solely in the interest of the public."

The New Plan.—We have passed one year under the plan of reorganization. How well the officers of this Society have succeeded you must be the judges. Your efficient and zealous counsellors have organized and equipped sixty-two County Societies, with a membership of 1,000 active legal members. We have reported 72 counties out of 96, with 1,000 members whose dues are paid, and which have bona fide representation in the House of Delegates.

The plan of reorganization is perfect in conception and practical in its scope and purposes. The County Society, which is the unit of organization, is the bed rock of the whole superstructure; while another main feature of the new scheme is the division of the work into two grand departments —the scientific and the legislative. It is through the County Society that the bond of union of the profession must be maintained. Nowhere in the whole profession is the era of good feeling and brotherhood more needed than in our local home societies. The proverbial stigma that attaches to

the medical profession, in that doctors disagree and hate each other, is directly traceable to the rivalry and jealousy of the local doctors who are in each other's way, or between competing schools in the same city. Especially is this the case of a new doctor who comes into a community, who is met at the "threshold with ill-concealed sneers and sometimes complete ostracism of those established in practice, which grow if he succeeds, but rapidly disappear if he fails," and he is then the dearest brother in the world. Physicians are the most agreeable fellows in the world except with their rivals at home, and as McCormick says: "They are often like Damon and Pythias with those from a distant city or community, while barely on speaking terms with equally as good physicians of their own town or neighborhood."

Now, why is this? It may be all summed up in one word—misunderstanding—hence, the great cure for this defect is the meeting together in the local societies, where, through discussion and intercourse, physicians may meet and know each other face to face, and in thus fraternizing, learn to respect and love each other more and more. And as we thus become better acquainted with our brother, we will find him not such a consummate quack as we supposed; not so unethical as we have heard; that he knows a little more about medicine than we at first imagined, and, in fact, he is not such a bad fellow after all; and thus the misunderstanding vanishes, the members fraternize, the membership increases, the discussions become more interesting, the attendance at each succeeding meeting is larger, the bonds of union are strengthened, and the profession at large is unified and benefited, all through the county organization. The benefits which will be derived from a division of the society into two co-ordinate branches, the scientific and legislative, will be so apparent at this meeting it is needless, it seems to me, to refer to the matter. The emphasizing and bringing into prominence the scientific part of the work at this meeting is quite signifi-

cant, and is greatly due to the indefatigable energy and wisdom of our worthy secretary.

Our efficient Board of Health still continues an auxiliary of the first importance in the progress of sanitation within the State; especially have they done valuable and efficient work in the investigation of the subject of water supplies of several cities, and have also greatly reduced the possibility of the spread of contagious diseases, notably smallpox, by a closer supervision and execution of the laws of prevention; yet there is one defect in the system of our health law. That is an imperfect method of gathering vital statistics. As the custom now is, we have mortuary reports from the cities and larger towns only. This is to be deplored, for it is as important to correct history of the rural districts in regard to vital matters as cities.

But the Board of Health can not move forward in this matter without means for the increased work which this perfected system would entail. Fifteen hundred dollars is entirely inadequate for the needs of the board; hence, they are handicapped at the very threshold. I would suggest, therefore, that the House of Delegates devise some plan by which they may assist the board in securing favorable legislation and increased appropriation from the Legislature in furtherance of that work, to the end that we may attain a complete and uniform system of registration of vital statistics. I, therefore, recommend that the committee on public policy and legislation take this matter under advisement, with plenary powers to act in the premises; and also I recommend the appointment of a committee of three to co-operate with the American Medical Association, which meets at Atlantic City, June 7th, 1904.

Now, gentlemen, we come to the most important subject in the domain of medicine:

Tuberculosis.—There is no question which is attracting more attention from the public from a social and economic

standpoint, nor a problem of more absorbing interest to-day to the physician, from a medical and humanitarian aspect, than the scientific and economic consideration of methods and means for the prevention and cure of tuberculosis or consumption. More has been said and written of this subject in the last two decades than all other medical subjects put together.

We read with horror of the devastations caused by epidemics of the plague, black death and cholera, historic epidemics which have swept over Europe and Asia, and wonder in amazement at the stupidity manifested by the authorities in epidemics of typhoid fever or smallpox. There is something appallingly impressive in a malady which is mysterious and unfamiliar, which spreads rapidly, with great mortality, and quickly subsides, "but to an epidemic that is always and everywhere with us, that is so common and so fatal that every one has personal knowledge of it, we present a stolidity as fatalistic as death itself."

Notwithstanding this plague, consumption, has hung like a pall upon the earth for thousands of years, and has killed, not millions, but billions of men and women, more than all wars and pestilences the world over, yet a people have never yet been aroused until lately to a mighty, sweeping action. Twenty years ago we stood facing this problem without hope, and helpless in staying the ravages of this dread scourage. This attitude was naturally the result of the idea of an unknown cause, insidious progress, and incurable nature of the disease, and the world contented itself with the philosophy of "what can't be cured must be endured."

But to-day new hope and life come to us. We now know the cause and nature of consumption. We know that there are two primary factors in the causation of every case of the disease—the seed and the soil—that there must be a vegetable, not animal, paracite or germ, the tubercle bacillus; that this germ originates only from tuberculosis food and from

the sputum of a consumptive patient, which is either ingested with the food or breathed into the throat and lungs with the air. That the disease, per se, is not inherited, but acquired. That a predisposition may be inherited or acquired. It has been demonstrated over and over again that tuberculosis is an infectious, preventable and curable disease. These are questions which are put entirely beyond the pale of controversy. The tuberculosis problem, therefore, must be viewed chiefly from its civic aspect.

Pruden, one of the greatest living pathologists, lately writing on the subject, says: "It is commonly neither wise nor necessary for people not professionally concerned to think much about disease or weigh anxiously the chance or mode of its acquirement. But now and then conditions arise that demand our attention and instruction, in order that a great threatened or actual calamity may be averted. Such a condition faces the people in all lands to-day in the appalling prevalence of tuberculosis."

To-day we stand facing the vital statistics of the world, which tell us that two millions of people die annually from this frightful scourge; that the migration into eternity goes on at the rate of 8,000 for Canada and 150,000 for the United States yearly. Every day 3,000 and each minute of the day two persons fall from this enemy. Eminent men who have been engaged in pathological work for the last twenty years have come to the conclusion that 96 per cent of the entire population of the civilized world, over the age of 18, is tainted with tuberculosis in either its latent or active form. That it is the cause of one-third of all deaths that occur between the ages of 15 and 45, the period of usefulness, or the productive period. These facts prove that tuberculosis is more a social problem than a purely medical one. As a social problem, it makes it a matter of grave concern to all members of society; its prevalence depends largely on social conditions; in turn it aggravates social evils, and its practical eradication depends upon social activity.

It is estimated on statistical experience that of the eighty millions of population in this country, ten millions of people are doomed to die of consumption who might otherwise survive for many years. Every year we pay tribute to this disease in the form of sacrifice, a hundred thousand victims in the prime of life, together with untold treasure. The cost and slaughter of war are insignificant in comparison.

But let us come nearer home, and view what havoc this disease is playing in our Southland. Tennessee, Kentucky and West Virginia lead the van with the frightful mortality of nearly fifteen per cent, while North Carolina, with her sister States, South Carolina and Virginia, are registered second tier of States, with a mortality of nearly twelve and a half per cent. The percentage of death from consumption is greater in North Carolina than in the great States of Massachusetts, New York and Illinois, the average percentage for these States being ten and one-half, while North Carolina is twelve and one-half per cent. The most striking fact brought out by statistics is that a group of 340 of the largest cities in the union, with a population of 29,000,000, with a yearly death rate of 59,000 from consumption, giving a mortality of 10 1-2, rank second in comparison with North Carolina, which is first, with less than 2,000,000 souls, with a mortality of 12 1-2 per cent from consumption, which sends into eternity yearly over 2,500 men and women. If we extend the comparison, the figures show the twelve largest cities, with a population of 8,000,000, representing nine different States, from Massachusetts to California, whose population amounts to 45 per cent of the whole, have a less death rate than North Carolina, which has only 5 per cent of urban population, in the former there is a mortality of 10 3-4 per cent, while in the latter it amounts to 12 1-2 per cent. This high death rate in our State shows certainly that consumption is more prevalent in the rural districts than one would suppose from casual observation. Out of 2,350 deaths, 1,850

occurred in the country districts. If, as has been shown, consumption is the cause of 12 1-2 per cent of all deaths, 2,500 occuring yearly, in this State, and there is only 5 per cent of urban population, there is no question but that there is frightful mortality from the disease in the rural districts and small towns composing 95 cent of population.

It may be argued that the two prime factors which enter into the question of increased death rate from tuberculosis—the large number of individuals who come into the State seeking health, and the great mortality among the colored race—go far to swell the mortality list. The granting of this argument does not eliminate the fact of disseminated tuberculosis with centers of infection in every part of the country.

In 1900 there were 2,350 deaths from consumption in North Carolina. To-day we have not less than 10,000 cases and with 3,000 annual deaths. This speaks in volumes for our State, and places us in not a very enviable position as regards the prevalence of tuberculosis, and calls to our minds that there is no problem which confronts the sanitary authorities of the State at the present time equal in its importance and magnitude to that presented by tuberculosis; nor is there any other sanitary proposal which offers the promise of such vast returns in diminishing the rate of death and sickness as one which provides successful measures for the prevention of disease.

This, although not a problem, is of supreme importance. Tuberculous diseases are not more prevalent than formerly, but only in recent years have the medical profession and sanitary authorities discovered means of the prevention of this disease.

Twenty years have passed since the discovery of the cause of tuberculosis by Robert Koch, and only lately has the full significance of his great work become apparent, in the prevention of tuberculosis, and even now a large proportion of the profession and laity fail to grasp its vast influence on the

present and future happiness and prosperity of the human race.

Koch demonstrated that it was an infectious communicable disease caused by a germ. Therefore, it follows as a necessary conclusion from his demonstration, that it was absolutely a preventable disease. Therefore, in view of what has been said, what are the practical deductions to be made from all these facts in our combat against tuberculosis?

In the first place, statistics reveal the prevalency and mortality of the disease, which serve to show the size, situation and strength of the enemy.

They show that the appalling death rate of tuberculosis continues; that although it is lowered in a great many localities, yet it continues to affect one-half of the whole human race, causing the death of one-seventh of all who pass away in the United States, and kills one-third of those between the ages of 15 and 45, and in North Carolina it is responsible for 12 out of every 100 deaths of her citizens.

In the second place, a knowledge of the nature of life history of the tubercle bacillus, the cause of the disease, reveals the strategic point of attack. If we know the strong and weak points of the enemy, we can then get a clue of the specific weapons to be used in subduing and exterminating him.

This warfare then must be waged on two lines of action—prevention and cure.

The first, then, prevention, is the key to the whole situation, and includes a crusade of education. "The natural history of the germ teaches that it does not multiply outside the body; that it may be killed by the simplest methods, direct exposure to sunshine and light being the surest; on the other hand, it may retain its virulence for two years or more in a dark, damp apartment;" that in the pulmonary form, which is by far the most frequent, the germ must find lodgment and growth in the tissues of the lungs, must be expectorated, dried and pulverized and mixed with dust, before it becomes dangerous to others.

The weapons, therefore, indicated are indeed simple. "The control of the habit of indiscriminate expectoration; the disinfection of the apartments where consumptives have lived; the education of all members of society in a few simple facts which they should know about the cause and prevention of consumption; and the isolation of the tuberculous patients in hospitals and sanatoria where they can be cared for under the proper medical guidance in all stages of the disease.

But if our campaign of education could stop here the solution of the problem of prevention would be quite easy. The social aspect of the case arises. "The ignorance and indifference of the people to their responsibility can not be controlled." They must be taught that the strengthening and resistance of the defenses of the body are as important as the strategic attacks on the enemy. They must be taught that everything that makes men and women healthier and happier as germane to prevention of tuberculosis. "The better housing of the working classes, the improvement of the sanitary conditions of churches, theatres and all public places; the enforcement of standard healthful conditions in all occupations," especially in cotton and other factories, the reduction of working hours; the raising of wages; the teaching of the art of housewifery to girls and the science of food preparation; all these and kindred efforts tend materially to lessen the death rate of tuberculosis."

The people must be taught that anything that lessens the bodily resistance predisposes to the disease; that the wear and tear of the system resulting from privation or intemperance are great factors in the causation of the disease. And here it must be stated that the excessive use of alcohol triples the predisposition of tuberculosis. I quote another great author, Knoff: "There is another point in regard to alcohol and tuberculosis I wish to emphasize, and that is: The idea that alcohol is a remedy for consumption. There has never been a greater mistake made. Alcohol has never cured nor never

will cure tuberculosis. It will either prevent or retard recovery."

What should be taught also in regard to tuberculosis which would be of incalculable comfort to many, is that the disease is not inherited. "It is very important that all should understand this, for it contradicts a long prevalent tradition. But what we do inherit is the susceptibility to the disease. It is not the disease, tuberculosis, then, which comes into the world with certain individuals or families, but the aptitude to contract it, should external conditions favor. However much a child of tuberculous parents may be predisposed to the disease, he can not acquire the disease unless by some mischance the fatal germ enters his body from without. Then the combination of conditions, the soil and the seed, produce the disease."

This then brings us to a fact of far-reaching consequences, that it is not a contagious disease in the sense as scarlet fever or smallpox are contagious, and show that neither the person nor the breath of a consumptive is a source of danger, but the dried uncared-for sputum of those suffering from pulmonary tuberculosis is the great source of danger, and if only that discharged material could be rendered harmless or destroyed before it dries, the ravages of this scourge would cease in a short while, and in 30 years would be blotted from the face of the earth.

The main reasons why tuberculosis—such a preventable disease—remains still the scourge of the human race, after 20 years of saving knowledge, are three-fold: First, as we have said, the people do not understand the ways in which the disease spreads, and are ignorant of the simple means of its avoidance; second, many are careless or indifferent as regards sanitary regulations, and third, the facilities for the care of the poor and friendless are entirely inadequate. Thus a large per cent of the victims of the disease are hopeless, in the sight of hope, which science holds out to them, and thus each sufferer left to infect his fellow-men.

It is admitted on every hand, without controversy, that tuberculosis is eminently a disease of the poor; that one-third of the working population between their fifteenth and forty-fifth year die of it. They are taken away in the productive period, and leave those dependent upon them for a living helpless. The idea of the importance of co-ordinating all the social forces is finding recognition everywhere. A great Frenchman says: "The struggle with tuberculosis demands the mobilization of all the social forces, public and private, official and voluntary." From all that has been said, we conclude that tuberculosis is a preventable disease; that it is not directly inherited; that it is acquired by the transmission of the germ from the sick to the well through the dried sputum, which, being pulverized, floats as dust in the air.

Now, what is the remedy in this great crusade? It is needless for me to say that the medical profession is fully aware of its duties and responsibilities in this struggle against tuberculosis. But the medical profession, however strong and influential, and the Board of Health, however enthusiastic and efficient, are entirely unable to grapple with this problem unless they have the support of the people and the administration of the State. They must have generous appropriations from the State for carrying on this work, for medical inspectors, and disinfectors, for educational measures, for the establishing of hospitals and sanatoria for the treatment of early stage cases, and comfortable homes for the advanced cases, where they can be cared for until the inevitable termination comes.

It is high time, then, that the whole State, medical and lay citizens, should wake up to the true realization of our true condition in regard to this problem. Every member of this Society should constitute himself as a committee of one when he returns home to disseminate knowledge and educate the people of his community how to prevent tuberculosis. The State in her official capacity should view this question both

from a humanitarium and economic standpoint. It is now fifteen years since the health department of New York City began its efforts in the prevention of tuberculosis, and these have been rewarded by a reduction of mortality (40 per cent) which is entirely out of proportion of the expenditure of money and time which has been done in the city of New York. More has been done in that than in any other city in the world, yet to-day she has 15,000 consumptive poor, with hospital accommodations for hardly 1,000. Recent statistics of the health department showed that 1,750 consumptives who were finally received in hospitals and have died were homeless. "They had slept in the alleys, hallways or anywhere they could find shelter for the night; 37 of them were found dead in such places." "What do these homeless cases mean when viewed as sources of infection?"

"This must give food for thought to statesmen, sanitorians and philanthropists alike."

In considering this question from the view point of economy, our Legislature should be induced to consider the advisability of establishing hospitals and camps for the cure and treatment of the consumptive poor of the State. The State is spending many thousand dollars yearly for the care of the insane, which is commendable and necessary for humanitarian reasons, but I have no hesitation in saying that greater returns would be attained by the expenditure of one-quarter of the amount in the prevention and cure of tuberculous diseases.

Hermann M. Biggs, superintendent of health of the city of New York, in estimating the economic loss to the municipality from the effects of this disease, says: "It may be conservatively estimated that each human life at the average age at which the tubercular death occurs, is worth to the municipality $1,500. This gives a total value to lives lost annually of $15,000,000. Adding to this the loss of their service, at $1 per day, food, nursing and medicines, gives a further

loss to the municipality of $8,000,000, making a total loss to the city from tubercular diseases at least $23,000,000. It has been estimated that in the United States annually not less than 150,000 deaths are caused by tuberculosis. And estimating the value of these on the basis just given, we have an annual loss to the country of more than $330,000,000. The census of 1900 gives, for North Carolina, 2,350 deaths from consumption. Estimating on the basis as above, it would give a clear commercial loss to our State annually of $4,500,000. This economic view of the case would seem to be an unfeeling way in which to present the question, but it is the only way by which we can gain the attention of the law-makers and philanthropists.

The more consumption we cure, the more bread-winners we create, and the fewer people will become charges to the communities.

The idea of sanatorium treatment of tuberculosis is becoming more popular every day, the world over. Foreign nations are manifesting great interest in this subject. Germany alone has 33 popular institutions established by the State. Insurance companies last year invested over two million dollars for sanatoriums for consumptives. England following the example of her greatest queen and noble king, has long been far ahead of this country in possessing several institutions for the treatment of consumption, and the reduction in the death rate from consumption in the last two decades, over one-half, is directly traceable to the doctrines of the sanitorium treatment.

To be convinced that consumption is a curable disease, one has only to consult the statistics furnished by the large sanatoriums. From any of those institutions which receive patients only in the very early stages of the disease, 75 per cent are discharged cured. And in most of the sanatoriums in Europe, where people in all stages are taken, statistics show that 25 per cent are absolutely cured and 50 per cent

are greatly benefited and sent home, capable of making a living. If people would only remember these statistics they would never question any more the curability of consumption.

Several of the States already have taken advanced steps on the subject, and have passed laws appropriating money for the erection of suitable sanatoria for the cure and treatment of tuberculous people.

Our sister State of Virginia, through the energy of the medical profession and concentrated action of the board of health of that State, have become alarmed at the serious tuberculous problem which confronts them. The board of health compiled and submitted recent statistics which showed there were 12,000 cases of pulmonary consumption in that State. The Legislature promptly passed a resolution inquiring into the "status of the disease commonly known as consumption, and also to report whether or not it is advisable for the State to establish hospitals for the cure and treatment of persons affected with tuberculosis."

Now, what of our own beloved State? Can we as individuals and collectively afford to be laggards in this great crusade?

In case of emergencies and in the dark hours of trials and tribulation have the sons of the old North State ever proved recreant to their duties? Did we not once sacrifice more precious lives and treasure than any State in the South for a cause we thought was right, and will we not again when we are called upon in the supreme hours of need, come forth with our brawn and treasure in this combat against our greatest enemy, consumption?

From the latest data at my command, I estimate there were in 1902 about 9,600 tubercular people in North Carolina. According to the mortality rates, it woud give 3,000 annual deaths from tuberculosis. Are not these figures alone sufficient to convince us of the necessity of the mobilization of all our social and political forces in the education of

public opinion up to the point of demanding legislation on the subject? And when we have done this, the ways and means will be forthcoming for the establishment of hospitals and camps in suitable portions of the State for the care of the indigent sick consumptive.

I therefore present this idea for the consideration of the Committee on Public Policy and Legislation, and ask them to discuss the proposition of the advisability of presenting, through the House of Delegates, a prayer to the next Legislature of North Carolina for the Governor to appoint a committee of five members, to be composed of two laymen, two medical, and one from the board of health, whose duty shall be to report plans, specifications and cost of one or more hospitals or camps, to be erected in the most desirable and healthy climate of the State, for the cure and treatment of people affected with tubercular diseases. The cost of this enterprise is not beyond the ability of the State to pay, when we consider it from an economic and humane standpoint. Basing our calculations on the expenditure of sanatoria institutions in other States, there could be built and equipped hospitals for the accommodation of 500 patients for $200,000, and for the expense of running the establishment not over $100,000 per annum. These figures dwindle into insignificance when compared to the loss of millions sustained by the State as a direct result from the ravages of this disease. A great deal can be accomplished for this great movement through the organized efforts of the individual county societies. Sixty-two societies with 1,000 active members can accomplish much in the way of moulding public regard for the prevalence and prevention of tuberculosis. Indeed, the united energies of these societies would be sufficient to control the actions of their respective county representatives in the Legislature, so that any reasonable measure that the medical profession might suggest could be enacted into a law.

And finally, gentlemen, if every one, in his respective

sphere, and the local and State authorities, would do their full duty in the combat of this fearful scourge of mankind, it would not be many years before tuberculosis would be eradicated from our midst, and we would have the honor, as in other instances, of being the first among the States to accomplish this great and glorious work.

"More Light."

"I honor him who still in age aspires,
Not satisfied by gains of younger years;
Who sits not down, or shed vain tears,
Because the heart has lost some high desires,
But searches on; his spirit never tires;
Though eyesight fail, the inner vision clears,
One of the brotherhood of white-cowled seers
Who feed with sweetest oil truth's altar fires.
He does not heed the fast-descending sun,
The twilight gloom, the terrors of the night,
But says, in words of Attica's wise one,
'I grow old, learning'—youth-inspiring sight;
And breathes, exultant, when the day is done
With Welmar's dying sage, 'More light, more light.'"

(See pages 21 and 80 for action taken by the General Meeting and House of Delegates on President's Message.)

Annual Oration—Aesculapian Dreams.

BY CHAS. A. JULIAN, M.D , THOMASVILLE, N. C.

Since the creation of man human beings have been seeking after knowledge, and we, not unlike our forefathers, are striving to solve some of the problems of art and nature. To inquire into the history of the past seems to have been a stimulus that has urged us to rival our predecessors and to take the places of those who will soon rest from self, fellowman and country. Then we should not look with a superficial eye upon the duties that will soon devolve upon us.

One thousand years ago man thought that science was at the zenith of its glory, but men have been endowed with minds of greater depth, they have been giving proof of their comprehension, of the practical problems they have been roughly called upon to solve, and as the mind of man has gradually expanded, science has made so much progress that the minds of the greatest can not appreciate her progress.

As early as the sixteenth century the development of medical science had introduced the leaven which, from that day to this, has never ceased to work. Scattered over the world, even in far Siam and the jungles of Africa, bodies of men are at work, not in quest of gold or loot or territory, but of means to help their fellows to ward off sickness and unneedful death. Stately pageants and triumphal arches are not for such as these, for they make war not upon men, not upon the weak, but upon the malignant hosts of disease. When the observer's eye is directed to his surroundings and gazes upon what has been done by his predecessors, when we think what almost incredible progress medicine has made, and still more wonderful the brilliant and daring achievements of surgery, must we say all is done? The wise man not only

keeps his inheritance in good repair, but keeps adding to it and submitting something new to the world, new ideas and new discoveries are made every day, and the world is lighted up constantly by the men who have the proper regard for themselves and their fellowman.

An address of this kind is apt to seem to most persons like an idle ceremony. The duties of life are so varied and pressing, its calls so incessant, its vocations so absorbing, that there is little time left for indulging the vagaries of imagination. There are few of us but are prone to seasons of meditation, when melancholy visions fill up the gamut of life and the future seems curtained. At such a time it is an experience of the most invigorating nature to find in firm outline the bland sufficing pictures which idealism has been able to gather from the dust-heaps of tradition. When a man's mind has reached the receptive stage of entire appreciation toward concepts and revelations of truth he is in a fair way to become the most enviable of men who live for truth and its dissemination among the people of the world. No student of medicine should escape the contagion of optimism, nor can he afford to miss the inspiring sight of a soul poised and balanced on its own pedestal of indestructible right without recourse to tradition. The progress of medicine during the past two thousand years is a subject fraught with powerful and important suggestions to all who interest themselves in the onward movements of the human race. Opinions and events which have entirely altered the framework of the science of medicine, each assuming for itself a prominent place in public consideration, have followed each other with a celerity unknown to any other science. "Reverence of the true, the beautiful, and the good has characterized physicians in all times and climes."

The history of medicine is really a history of human discovery. Its inception is shrouded in profound obscurity and so mingled with myth and fable as to be very uncertain,

and often made inutile by superstition and ignorance. We can read the history of medicine and comprehend something of the progressive tendencies, for two or three hundred years past, but the work of more primitive ages seems almost beyond our comprehension; nevertheless, they have left their footprints which are fast revealing the great truths of life. The line which separates the ancient and the modern history of medicine can be no other than an imaginary boundary. There is no natural chasm in the train of events, no cessation or interruption in the tide of fate, at which a new era can be counted distinct from and unconnected with the moment that has immediately preceded it. Whenever we assume our station we must still refer to the past, if we would render the future intelligible. "Medicine is a noble art and honorably descended. Apollo was its primary god, and his son, Aesculapius, whom the poets also deify, the first professor thereof; for, as in natural things, the sun is the author and fountain of life, so the physician who preserves life, seems a second origin thereof." The Saviour, who was the grandest physician to soul and body, paid the greatest honor to medicine by making it the standing subject of His miracles, but by His miraculous power He did what is and always will be impossible for humanity to perform. The laying on of hands, the anointing with oil, the moistened clay, the word command, clearly and intentionally show that it was by the exercise of divine power, and not by the use of material agencies, that the blind saw and the lame walked. These were given to illustrate His divinity, and ceased when He left the earth. Everything is slowly, but surely and constantly changing, never precisely representing any previous condition. Spencer says: "Early ideas are not usually true ideas. Undeveloped intellect, be it that of an individual or that of the race, forms conclusions which require to be revised before they reach a tolerable correspondence with realities. Were it otherwise, there would be no discovery, no

increase of intelligence. The interpretation of physiological facts were at first wrong. Judging from the past, is it not more than probable that many of our present ideas are still erroneous?

In the earlier periods of human existence, man was unable to comprehend the action of natural law. The volcanic eruptions were to them the breathings of the fire gods; the tempest was but a manifestation of the wrath of the god of the winds, who was thus uttering his vengeance against the people; while the thunderbolt was but a signal shot sent at random to remind the people of their wickedness and call them to prayer, or, when fatal, was a swift-winged messenger sent to do the will of the gods. The thunderbolt, the tornado, the earthquake, the volcano, and the ocean's mad lashings convinced the people that gods resided in the skies, in the caves of the earth and in the ocean. During antiquity medicine bore the same mythical ideas, divinities, heroes and heroines were supposed to have invented or cultivated some of its branches. But the Alexandrian school, with Erasistratus and Herophilus at their head, began the teaching of the human structure and thus have physicians been supplied with a clear basis upon which to rest the classification of disease.

Pliny informs us that the kings of Egypt allowed the dead to be opened for the purpose of discovering the causes for disease. Venesection was conceived in the mind of Machaon, the son of Aesculapius. Herodius prolonged life and prevented infirmity by physical culture, which was the main pillar upon which athletic Greece was built.

The most intelligible and complete writings of antiquity were those of Hippocrates. The term crisis as the climax of morbid phenomena is credited to him, and his books were full of the four elements—earth, water, air and fire. The latter will receive the attention of some physicians at some future day. Plato was most fascinating in his teachings,

and undertook the study of disease by intuition. These ideas were antagonized by Aristotle, who taught that all ideas are due to sensation. Herophilus was the first to systematically dissect the human body; he described the membranes of the brain and its vessels, the chloride plexus, the vetricles of the brain, the tunica of the eye, the intestinal canal, and certain portions of the vascular system. Erasistratus was the first extensive writer on fevers, hygiene and therapeutics, and regarded most diseases due to overindulgence in food and believed in bleeding and fasting. Galen conceived the idea of vivisection; he exposed the muscles of living animals, and and showed how alternate tension and relaxation of distinct groups set the bones in motion. To Galen we owe the division of the body into cranial, thoraic and abdominal cavities.

Oribasius early attached himself to the fortunes of Julian the Apostate, followed him into Gaul, effected extraordinary cures, and was almost regarded by his followers as a god. Alexander of Tralles first reported cases of excessive hunger and pain due to intestinal worms. Paul Aegineta was the first to describe and perform the operation of bronchotomy, and was also the first to do extraction of cataract. Aveszoar outlined the treatment for renal calculus. Andreas Vesalius revealed his inclination towards anatomy by amusing himself in the dissections of animals. Gabriel Fallopius' researches left their imprint on the human body, and one of the important organs bears his name. Ambrose Pare, from an apprentice to a barber-surgeon, climbed round after round of ambition's ladder until his name is known wherever the art of surgery is taught. William Harvey, in his search for truth, conceived with difficulty the discovery that revolutionized physiology, but was thought to be demented when he made known the doctrine of the circulation of the blood. Haller's scientific blows felled the doctrine of vital spirits, and he became the father of modern nerve physiology.

Rather more than a century ago, a rather young physician

thought to test a very old-folk remedy against the greatest scourage of that day—smallpox. His method, slightly elaborated, has served to banish that disease from cleanly lands. But it was merely a chance success won in the dark, to use a large word, a purely empirical discovery. A vision surges up; out of the darkness are shown the strange beginnings of things, rooted like flowers, yet groping out with tendrils towards light and consciousness. What feeling comes to trouble this mystic doze, stir this comatose consciousness? Out of this man has dared to provide the body with new weapons of defence when the infection has come.

There are two torrents that amaze me—the one is Niagara, and the other the outpouring of science. There be those who can not bear that Niagara should fall and thunder in mere sublimity, and only to such will this falling thunder of science seem waste. Louis Pasteur followed the customary method of preparing the smallpox vaccine, found that by deliberately cultivating his microbes through a succession of young animals he was able to attenuate the poison they secrete as to make it relatively harmless. Nevertheless, as in the case of vaccination, the fungus thus modified was able, by inducing a mild form of the disease, to confer immunity against a more virulent attack. His dramatic cures of the dreaded hydrophobia gave his ideas a world-wide vogue, and in scarce any land of the earth were there lacking eager spirits to follow out and explore the paths thus so brilliantly opened up. A little later came the discovery that the serum of inoculated animals, the colorless fluid of the blood after the red corpuscles which it contains have been strained out, contains an anti-poison, or as it has come to be known, an antitoxine, which, injected into an animal confers immunity in the same manner as inoculation itself. This was the beginning of the "new medicine," and the so-called "Sero-Therapy." If the new methods have not yet been realized all that was hoped from them, it may still be noted that the anti-

toxine of diphtheria has already saved thousands of little lives. Growth and decay run parallel. Jonah's gourd came up one night and died the next. The thing to believe in is the gradual and steady pace, but science has proven to us that radium and the X-rays, those allied new wonders, are more miraculous every day. "Can the Ethiopian change his skin or the leopard his spots?" "Then may ye also do good that are accustomed to do evil." This has always been taken as a biblical and poetical way of expressing an utter impossibility, but when considered more carefully, it does not really seem certain that it implies absolute impossibility. Radium and X-rays have a remarkable effect on the cells of the body, whether in the hair, the skin, or anywhere else. They have a peculiar property of removing coloring matter from the skin and hair. They turn dark hair light and finally white. They remove freckles and burn out the coloring matter. This substance is the charm that will make the negro realize his dreams and enter the portals as white as snow. The discovery of liquid radium will be of incalculable benefit to humanity. Several important branches of medicine and surgery may be revolutionized by the successful harnessing of the mysterious properties of radium. The value of this latest discovery lies in the ability to transmit properties of radium to water or drugs and in this way reaching the seat of the disease. We have thus the hope before us that the internal administration of radium fluid will strike at the root of tuberculosis, diphtheria, typhoid, and other infectious diseases and in the protozoal diseases, as malaria and perhays scarlet fever.

Radio active water is now being given to patients with cancer of the stomach, with decided hope for cure. Induced radio activity may be described as the property of radium whereby it imparts radio activity to other bodies in the immediate environment. The normal salt solution is one of the best media for the manifestation of this phenomenon. Hu-

man rays or X-rays are excited in one who has bathed in radio-active water. It is said that the natural springs or Hot Springs of Arkansas have at last revealed her mystery to the scientist. It has been found that the waters and the steam and vapors from the Hot Springs are powerfully charged with radio-activity. In other words, it is this wonderful new germ-killing metal, radium, which has for centuries been producing the cures which have puzzled physicians and scientists to explain. It has been thought that there is a bed of radium at a great depth in the earth, beneath these springs, which communicates a strong radio-activity to the water. While the strange effects caused by radium are being observed in all sorts of different places, a new class of rays is puzzling science. These are the N-rays, discovered by Professor Blondlot, of France. They are as mysterious as the radium rays; they are even spoken of by some observers as the human rays. When we are in vigorous health we emit vast quantities of N-rays, and when we grow ill they fade away until we die, when they cease altogether. All these interesting discoveries point to the conclusion that we are living in the midst of a system of invisible radiations, which when they are thoroughly understood, will completely change all our conceptions of physical science and with it the world.

In the mad rush of the present age, that man is indeed fortunate who has the mental equipoise to view calmly and dispassionately the current of events and to form his judgments from the experience and wisdom matured by time, instead of attaching undue importance and weight to t' new and untried things, born of the prevalent spirit of unrest. Almost every year evolves some new surface eddy. Imagination is the pioneer of many minds, opening vistas of vision not to be reached by common eyesight, and crowded with objects, some few of which are now and then imperfectly made palpable and visible by the gifted seers who

materialize their thoughts in words only. The poetry of truth is nothing to those whose business is only a trade, and knowledge is valued only as a salable commodity by those whose souls live in the market. They bind us with fetters of error and falsehood, and deceive us by the siren's pleasing songs, and soothe us into dreaming slumber, from which we shall awake only to find ourselves disappointed. Although there can be no doubt that during the past decade medical science has made rapid and giant strides towards the alleviation of human suffering, and the prevention of disease, it must also be admitted that medical scientists have held forth promises which have not been fulfilled, and kindled hopes, doomed soon afterwards to be quenched. Who does not recollect the ecstacy experienced by thousands of consumptives when the declaration was heralded far and wide a few years ago that the cure of the most dreaded disease of humanity—consumption—had at last been found. The memory of that vast pilgrimage of poor creatures flocking from the uttermost ends of the earth to the German discoverer. Oh! the bitter disappointment. It was enough to touch and wring the heart of the hardest, that changed hope into despair. These different panaceas, as numberless almost as the sands, planted by their discoverer and watered by their advocates, appear regularly as the seasons, blossom forth as luxuriantly as the tea rose, and die as quickly as the morning glory. They are here to-day, gone to-morrow. This morning they are regarded as reverently as heroes going forth to battle for mankind. This evening they are shorn of their honors, despised and trampled upon by their advocates of the morning.

The years flee! The complexities of the twentieth century methods obscure or entirely obliterate the names of the forefathers in medicine, but before the student of the past there arises an army of self-sacrificing men whose eyes opened on the morning light of undreamed blessings for the human race. It is hard to estimate the debt that we owe to those

whose feet made smooth the rough path of science and whose beneficent unselfishness set so splendid an example before their successors of to-day.

We do not possess the key that unlocks and reveals all secrets in the "Book of Life," but we can carry the sunshine of hope and comfort to the bedside of the suffering, smooth many of the wrinkles of care and lessen sorrow.

There are two hours in life's history in which the physician is appealed to as one bearing a sacred mission: the hour of travail and that of death. In the agonizing wail of anticipating motherhood we recognize the voice which gave to the world and humanity that priceless treasure, a mother's love. It is in this hour that the physician may have the responsibility of holding two lives in his hand, one bearing the fruits of maternity and love, the other cast helpless upon the ocean of life, as a jeweled petal blown from the rosary of God. The day will come when medical science and skill will have reached that apex of perfection that it will be able to remove all the diseases of man and leave not for life a single outlet, a single door of retreat, except old age.

There is something touching and in the giving health and life to men. The camp, the battlefield and the intrigues of state have ever charmed the poet and historian; but in the long and silent watches of the night, by the bedside of the dying, with all its stifled griefs, or when life trembles in the hand of the physician, alike in the poverty-stricken hovel or in the palace of the rich, are wrought deeds of heroism, unsung, inspired by the genius of Aesculapius, whose sons are forever crowding together to the temple, bringing their gifts to the altar.

(See pages 38 and 51.)

The Annual Essay--"An Ounce of Preventive."

BY JOHN G. BLOUNT, JR., M D., WASHINGTON, N. C.

In the past it has been the custom of the annual essayist to address both the profession and laity. I have not departed from that custom and have considered it my duty to select a subject that will be of direct interest to both and shall endeavor to arouse a series of questionings within ourselves that will enable us to attain higher standards. Let me preface my remarks by saying that I am fully aware that I am bringing out nothing new, nor would I attempt such an undertaking before so enlightened an audience. But thus early in the new century and the most auspicious year of the North Carolina Medical Society and its reorganization, I think it best to discuss among ourselves as to whether we as physicians are doing our full duty in the prevention of communicable disease, and you as laymen are paying due heed to our advice.

"In medicine each generation has inherited from its preceding generation many facts and few fancies, some of which are barbarous and unintelligible. As in the past with other generations, even so will it be with ours. Yet amidst the wreck of the eighteenth century theories and the revolutions in its practice" there will ever stand out the fact that there is a specific cause of disease and that cause micro-organisms. As to how far these germs are responsible for disease and how much is due to "diathesis" or "susceptibility" or "lack of resisting power" it is not within the province of this paper to discuss. Micro-organisms are certainly the determining factor in the production of communicable disease and should receive our daily consideration. Quackery and charlatanry, Christian Science and osteopathy, this ist and that ism, may seem for a time, to you laymen at least, to have usurped our

power of healing, but you physicians can, by your daily walks, by your daily acts, show to these laymen that ours is a higher mission, a nobler calling—that of the *prevention of disease.* "The pestilence which walketh in darkness and wasteth by noonday" is the direct result of these micro-organisms and it behooves us all, therefore, to study closely the nature of these contagia, under what conditions they find favorable existence and reproduction within and without the body, what is their mode of dissemination and how best we can accomplish their disinfection and destruction.

Do this and the pestilence that has been the dread of preceding generations will no longer be our dread. That we may accomplish this result we must not only ourselves, but our patients, cultivate that "scientific use of the imagination" which will enable us to follow the dissemination of these contagia, whether it be the typhoid bacilli running between the scylla and charybdis of sedimentation and precipitation and finally finding the well of some unwary and unenlightened individual and thence down the alimentary canal to his peyers patches, or the ubiquitous tubercle bacilli wafted by the gentle zephyrs into the free, pure air of heaven poisoning and contaminating in their flight until they reach the bronchial glands of some hypotrophic subject there to find favorable soil for lodgment and reproduction. We must be able to picture to our mind's eye the specific cause of each of the important diseases. Take, for example, the tubercle bacilli and picture to ourselves that thirty-six hundred of them arranged, end to end, make an army only one inch in length. That one teaspoonful of milk might contain one hundred million of these germs and it never be suspected that there was anything there but milk. Considering, therefore, the minuteness of these living organisms we can easily understand how they can be lightly wafted by every gentle zephyr that blows from heaven. How they can be conveyed to us in the clothing from the sweat-shops of the city. How "My

Lady's" veil, scarf or handkerchief may be the carrier of the contagia, or the dead child's ribbon stored up as a sacred reminder of a fair one loved but lost. That the dust of the room may be impregnated with these contagia, thereby even impregnating the hair and beard of its occupants. How an infected room may infect the sewer or the sewer in turn infect the supply of pure water. That the milk, in its round from house to house, may carry to those who imbibe it, instead of health and strength and ruddy cheeks, disease and death.

These are but a few of the lessons we will all have to learn in connection with the restriction and prevention of communicable disease, and with just what thoroughness and precision the lesson is learned just to that extent will our efforts be crowned with success.

From the laymen's standpoint cleanliness is next to Godliness. We must all admit that cleanliness is an important factor, because where cleanliness is the individual is healthier, stronger and more robust, and better able to resist disease. Ordinary cleanliness does not suffice for the destruction of these low forms of animal life and we must firmly establish in the public mind the fact: First, that these microorganisms do exist; second, their great power of resistance.

Does the task seem endless? In this Herculean undertaking do we need encouragement? Let us gain inspiration from our illustrious predecessor, Semmelweiss, who, when more than a half century ago he made the startling announcement as to the cause of puerperal fever, was treated not by the laity alone, but by his confreres, to insult, ridicule and abuse, and even more, the prison's chains and the prison's stripes. With a fanatical persistency he maintained his position for thirteen years and established what is to-day "current doctrine concerning the nature and prophylaxis of puerperal fever." By the persistency of this one man motherhood has become a blessing and a benediction, and every expectant mother in the land should know and praise his name.

Have we evidences at our command to prove what the profession has done, and is daily doing, in the way of preventive medicine. We have only to consult statistics and the mortality table and we will find that wherever there has been a general improvement in sanitary conditions there has been a gradual increase of human life. Take, for instance, leprosy, as old almost as antiquity itself, existing, according to Bible accounts, among the Jews in Egypt, and known and recognized in Greece before the Christian era. Gradually the disease extended until during the twelfth and thirteenth centuries there were in existence in Europe nineteen thousand lazarettos. The hand of man was turned against it and to-day it has almost disappeared from the most civilized States. At one time scurvy was the scourge of all seafaring people. Dr. James Lind studied its etiology and by his amelioration of the dietary of the British sailors he stamped it out of the navy or so restricted it that it was no longer of frequent occurrence. His beneficent influence was felt among all the navies of the civilized world and in the growing fleets of commerce as well. Through the efforts and influence of this one man, largely, beneficent laws have been enacted compelling the owners and masters of merchant vessels to observe certain sanitary and hygienic measures that protect the crews from scurvy. Have we not all observed in rural districts that are intensely malarial, the malaria grows less and less as the place becomes more thickly settled and sanitary and hygienic measures adopted. In the light of more recent investigations, as the ponds and stagnant pools become obliterated the mosquitoes migrate, carrying with them the malaria.

For what more classical illustration of the possibilities of preventive medicine could be asked than the successful efforts of Von Pettenkofer, the eminent scientist and sanitarian, in eliminating typhoid fever from the list of diseases in Munich, Bavaria. Prior to 1859 there were no sewers or regulations

for keeping the soil of the city clean, the water supply was from wells; the citizens avoided the well water when possible and strangers were warned not to use it. The mortality from typhoid fever was 24.20 per 10,000 inhabitants. In 1860 he began the reformation by cementing the sides and bottoms of porous vaults and cess-pits, and from these precautions alone the mortality was reduced to 16.80. He persisted not only in perfecting the sewerage system, but in furnishing a pure water supply, and since 1885 it has been claimed that typhoid fever has practically disappeared from Munich; that there have been no cases of the disease contracted within the city.

A few years back and Havana, at certain seasons, was not to be considered by one desirous of visiting that Southern city. The sanitary measures then in use were inefficient, and it seemed impossible to check the headway of yellow fever. With the discovery that the disease was mosquito borne, the American Yellow-Fever Commission made it possible to eradicate the disease, and Havana was, possibly for the first time in her history, free from yellow fever.

In the last century so prevalent was small-pox in Europe that, as Dr. Hyde expresses it, if a "modern traveler could find himself transported to the streets of the city of London as they appeared in the early part of the present century, it is probable that no peculiarities of architecture, dress or behavior would be to him so strikingly conspicuous as the enormous number of pock-marked visages he would encounter among the people at every turn."

Preventive medicine will ever count among its greatest triumphs the modification which variola has undergone since its preventive treatment was established upon a satisfactory basis by the discovery of the immortal Jenner.

In magnitude and importance the extinction of the plague in Europe is the most brilliant of the achievements of preventive medicine. It was due, in great part, to the perfection

and extension of the quarantine system in the countries of the Orient.

Diphtheria, one of the most dreaded, one of the most common, and at one time one of the most fatal, maladies of childhood, has almost wholly been robbed of its terrors by our system of quarantine and disinfection and the immunizing dose of serum. In no infectious disease—small-pox alone excepted—can so much be accomplished in the way of prevention as in diphtheria. In a report from the New York Health Department covering 15,986 injections of antitoxin in exposed persons for the purpose of immunization, the number attacked with diphtheria during the thirty days following injection was but seventy-nine (79), or 0.5 of 1 per cent. What grander achievement could there be in preventive medicine than that the labors of Schwann and Pasteur should have been utilized by the immortal Lister in directing surgical endeavor into the right channel. Through the perfection of Listerion methods, septicemia, pyemia, erysipelas and hospital gangrene have been wiped from the list of operative complications, and with a faultless technique we fearlessly invade the cronial contents pleura or peritoneum.

"The large joints form no more a *noli me tangere* and 'luck' or 'misfortune' is considered the direct consequence of a sound or an improper technique of cleanliness." Pasteur, Lister, Koch, immortal trinity, what a boon has thou been to suffering humanity!

What, you ask, has preventive medicine done to overcome that grim monster, consumption—destroyer of man, causing untold suffering and immeasurable financial loss; so destructive that it has been called "The Great White Plague." The difficulty with which physicians and laymen alike have been convinced of the communicability accounts largely for the slight progress that has been made in checking its advance. Since 1882, when Robert Koch first discovered the baccillus, the public mind has been gradually awakening to the con-

tagiousness of it and year by year modern science is doing more and more to check its ravages. In New York city alone, in spite of an increased population and a more densely populated area, the mortality from consumption from 1881 to the present time has been reduced 40 per cent. Consumption, the largest single cause of mortality, is, next to small-pox, one of the most easily preventable diseases. If the sputa of all consumptive persons could be entirely destroyed, consumption, the disease that "age has not been able to wither nor custom stale its infinite variety," would at last yield to the victory of modern medicine and its destruction be complete. This fact should "pulse with living interest for us all, for it is the word of hope. It is the promise not alone of individual restoration, but of ultimate and everlasting victory for the race." Leprosy, the disease most comparable to tuberculosis, has almost become extinct, and the history of preventive medicine in the past, which is but a history of sanitation, seems to guarantee a blotting out of tuberculosis.

In North Carolina in 1902 in twenty-six towns in the State there were three hundred and ninety-four deaths from tuberculosis. From pneumonia in the same towns there was a mortality of two hundred and seventy-two, ranking next to tuberculosis in the destruction of human life. If the same measures were adopted against pneumonia, as against tuberculosis, to-wit, the destruction of the sputa and the disinfection of the rooms and clothing, the mortality from that cause would be materially lessened. In the twenty-six towns from which the above statistics were taken there were nine hundred and seventy-nine deaths from contagions, infections and preventable diseases. Estimating that these towns furnished only one-half of the mortality from these causes, there were in North Carolina in that year nineteen hundred and fifty-eight deaths from contagions, infections and preventable diseases.

In North Carolina we should realize the double sense of

our obligation to the people, for ours is one of the few States in the Union in which the State Medical Society is the State Board of Health, having been given legislative power and the right of electing health officers. In studying the history of preventive medicine I have been impressed with the fact that each of the great reforms in medicine has been perfected by one man, and while we can not all be investigators with the fame of these great reformers, the family physician, the most influential and most respected members of society, united in the field of preventive medicine, will find their efforts crowned more and more by success and receive the homage of grateful humanity.

Pasteur laid down the indisputable *fact* that "It is in the power of man to cause all parasitic diseases to disappear from the earth," and if the further fact is admitted, that having grasped the nature and origin of disease, it will not be found difficult to develop a prophylaxis, then it is no Utopian dream of mine in urging that if every doctor in North Carolina, united to do battle against that dread monster, communicable disease, will go home to his clientele with that confidence in preventive measures that is the prerequisite of success, no longer will we be able to quote such appalling statistics.

Prejudice, ignorance and superstition, dread foes of every scientific advance, will be the greatest obstacle in our pathway. Precept upon precept, line upon line, and soon an enlightened public will awaken to the realization that the bag of assafœtida and nutmeg do not possess anti-bacillary action; that a little lime encircling the house does not suffice for the disinfection of the loathsome germs within, and that by improperly looking after the excreta the well of their grandfather may be the conveyor of typhoid fever and dysentery. They must further awake to the fact that measles and whooping cough are responsible for 12,866 and 9,958 deaths, respectively, each year and that it is no more essential for

their children to have these diseases than that they should have small-pox, pneumonia or typhoid fever. Happily, the public mind is awakening and the people no longer are content with the knowledge that they have certain diseases and their causation, but daily are they growing more and more desirous of knowing how these diseases can be prevented.

Education is the great reformer. Continue this education and teach the people the value of preventive medicine and the gratitude of humanity will reward our efforts. The day has already come when the surgeon, who, in ignorance or negligence of scientific facts by the employment of a faulty technique secures a bad result, is measured by his folly. Soon the day will come when the general practitioner, in ignorance or negligence of the powers of preventive medicine, failing to accord the public the protection that is due them, will be weighed in the balance by that same clientele and found wanting.

Should modern science win the victory and overcome these foes to the human race, we would not, like Othello, be without an occupation, for, in the language of Babcock, "The clash of mailed fists will go in defiance of the humanitarian; the glutton, the inebriate, the profligate will persist despite the reformer, and in the marts of trade when misdirected commercial pursuits rack the nerves, and ofttimes blasts the mind, the physician's warning voice will continue to go unheard."

(See page 31.)

Diphtheria.

BY J. A. WILLIAMS, M.D., REIDSVILLE, N. C.

My object in bringing this subject before you in annual debate is: That it may be discussed freely, each giving his experience in a practical way, and thereby help some, or all, of us in decreasing the mortuary statistics of this great scourge of childhood.

Diphtheria is derived from the Greek word meaning a skin or membrane. It is an acute, specific and constitutional disease, being both contagious and epidemic. It usually begins by an affection of the throat, characterized by local exudation, glandular enlargement, more or less fabrile reaction, prostration of vital powers, and frequently causing more or less paralysis of various parts of the body.

Cause.—The chief and exciting cause of this disease is: A specific micro-organism known as Klebs-Lofflers bacillus, which, in its action, generates a poisonous toxic substance called toxalbumin, the absorption of which causes the disease, and not the germ itself. This specific micro-organism is found in the excretions, exudes and saliva capable of being exhaled, thus contaminating the air, clothing, bedding, furniture and whatever else may be contained in the room.

The Predisposing Cause.—It is chiefly a disease of childhood, though not always confined to them, as the adult may often be afflicted. All bad hygienic surroundings, nasal, pharyngeal and laryngeal catarrh promote its growth. Associated with the bacillus of diphtheria are frequently found other pathogenic bacteria, the streftococus pyoginese and the stoplyloccus pyoginese aureus, the former of which occurs more frequently.

Pathology.—The pathology of this disease is interesting, because it is essential in making a diagnosis. The throat is red, containing spots or almost covered entirely with a greyish

membrane consisting of epithelial cells and leucocytes, which are granular and entangled in a network of fibrin. This being formed by the action of the germ on the surrounding tissue, causing coagulation, necrosis and exudation of fibrin entangled in the meshes of which may be found the bacillus of diphtheria, as well as the germ of suppuration. This membrane may extend into the nose or larynx. It is characterized by being embedded in the substance of the mucous membrane, so that when being pulled or mopped off leaves a bleeding surface, its natural mode of removal being by absorption, suppuration or gangrene. The muscular system, the heart, kidneys and liver undergo more or less albuminoid and less often fatty degeneration. The spleen and glands of the neck are enlarged. The brain and nervous system are frequently involved and neurites often produced by these toxic substances.

Symptoms.—The symptoms are rarely typical, but vary both in intensity and character. The onset may be mild, commencing with rigors, with but little fever, stiffness of the muscles of the neck, slight sore throat, headache, languor and but a small amount of exudation of membrane. Or the invasion may be more abrupt, beginning with a chill, temperature of 103 to 105, quick pulse, severe sore throat, stiffness and swelling of the glands of the neck, coated tongue, loss of appetite, loss of strength and prostration, the bowels being slightly constipated or tendency to diarrhœa. The urine is scant, high colored and contains albumin. On inspecting the throat you will find it red, swollen and containing a greyish membrane often covering the tonsil and uvula as well. The patient complains of the throat being dry, with constant desire to hawk and frequently spitting up pieces of membrane with ulcerated tissue, giving an offensive odor. If there is extension into the nose there will be an offensive discharge from this cavity, often epestaxis and frequent excoriation of the upper lip. Extension into the larynx i-

indicated by hoarseness, croupy cough, noisy and stridulous breathing and dyspnœa. Dyspnœa is so severe and spasmodic at times that the child will be cyonosed and die from lack of oxidation unless immediately relieved. The disease lasts from ten to fourteen days unless there is prolapse.

Sequelae.—In severe cases the patient is often left cochectic and anæmis with various paralysis, pharyngeal being the most common and often occurs in mild cases. Paralysis of the heart and syncope is not infrequent, with fatal results. Strabismis, hæmaplegia and paraplegia may also occur.

Diagnosis.—The diagnosis and treatment is of most importance to the general practitioner. But with the modern facilities for microscopical and laboratory work, the diagnosis has been made much easier than in former years. The finding of the diphtheria bacillus, together with the history and symptoms as given above, will make the diagnosis complete. I will say, however, that the finding of Klebs-Lofflers bacillus alone in the throat, without local or constitutional symptoms, does not always make a diagnosis of diphtheria. My experience in the New York Infant Asylum in 1897, in an epidemic of diphtheria, out of the examination of the throats of four hundred children twice a week, we frequently found the bacillus without any further development of symptoms whatever, either local or constitutional. The best means of obtaining a culture for examination for practical purposes is: A sterilized test tube containing Loffler's blood serum or agaragar to the depth of about two inches. Then, with a sterilized steel swab (wrapped at the end with a small piece of cotton), mop the throat and insert this end of the wire into the media of serum or agar and plug the tube with a piece of sterilized cotton. This is then placed in an oven and kept at the body temperature for twelve to twenty-four hours. The culture can well be seen in the media around the end of the swab. With a sterilized needle smear some of this on a cover-slip and passing it several times through an alcohol

flame to fix it, stain one-half minute with watery solution of methyllene blue, wash it off well with sterilized water and by the (use of an oil) emersion lense examine under a microscope and you can readily discover the bacillus. However, unless one is expert in this examination and familiar with the use of the microscope, he may mistake other microorganisms for this. I would, therefore, suggest that he send his specimen to the State Biologist, who could make the proper culture and give a diagnosis within twenty-four hours. This, I think, should be highly endorsed, as he is more expert, better prepared, giving his whole time and attention to such work.

With the presence of the diphtheria bacillus it is easily diagnosed from follicular tonsilitis by slight or absent systemic symptoms, absence of glandular enlargement of the neck and by ulceration being limited to the follicles of the tonsil. From scarlet fever by the presence of scarlatine eruption and absence of membrane. From croup by the constitutional symptoms and seat of the disease. In diphtheria the pharynx is usually the chief seat and beginning of the disease, while in croup the larynx is the chief seat of the disease. In diphtheria of the larynx the symptoms are chiefly those of mechanical obstruction. Diphtheria is highly contagious and epidemic; croup occurs spasmodically and is not contagious. In diphtheria the temperature usually begins to decline after the third or fifth day, while in croup it remains high in proportion to the mechanical obstruction. The urine in the former contains albumin and not in the latter.

Prognosis.—The prognosis in mild cases is favorable. If accompanied with high fever, an exudate spreading into the nose and larynx, with hemorrhages, glandular enlargement, large amount of albumin in the urine, rapid, feeble pulse the diagnosis should be *grave.*

Treatment.—The treatment, in order to simplify, I will divide—1, prophylactic; 2, serum; 3, constitutional; 4, local.

1. Prophylactic.—As soon as the patient is seen, even in suspected cases, before the diagnosis is clear, should be isolated and passing in and out of the room prevented. The physician himself should use every means to prevent the spread of the disease. A gown to protect his clothing and a cap should be worn, which can be removed on leaving the room, to protect others with whom he may come in contact. This, I am sorry to say, is not always adhered to by the profession, and they are often responsible for the infection of others.

2. Serum.—The antitoxine treatment of diphtheria has ceased to be an experiment, and is now an acknowledged fact by the majority of the profession. In my opinion it is one of the most wonderful discoveries made in the medical profession during the past century. While in the minds of some there is still a doubt as to its efficacy, this, I think, is due to the fact that the dose was too small to get the proper physiological effect, being given in from 500 to 1,000 units. This will usually be sufficient as a prophylactic, but not as a curative. In mild cases I give from one to two thousand units (injected in the subcutaneous ariola tissue, preferably on the inner side of the thigh) to be repeated within twelve to twenty-four hours, unless there is considerable improvement in the patient. The number of units used should be in proportion to the severity of the case. In severe cases from two to four thousand units, to be repeated within twenty-four hours. The English physicians have demonstrated the fact that severe epidemics demand heroic treatment and have given six, ten and even twenty thousand units within twenty-four hours with gratifying results. Gidney, in concluding an article on diphtheria, says "there is little fear of administering an overdose." In English hospitals it has been thoroughly demonstrated that by the use of large doses of antitoxine administered in the early stage (second or third day) of the disease has reduced the mortality to $2\frac{1}{2}$ per cent.

If both the laity and the physician would do their duty, the laity in sending for the physician early, the physician, by careful examination and the early use of antitoxine, will, in my opinion, reduce the death rate even a great deal below this. With the proper use of serum therapy in the early stages, there will be but little need for local or constitutional treatment. However, a certain amount of such treatment is necessary.

3. Constitutional.—I usually begin by giving small broken doses of calomel every hour or two until the bowels move thoroughly. The patient is put on the most nutritious liquid diet, such as milk, beef-peptinoids, egg albumin, broths, kumyss, etc. The diet should be given at regular intervals of from two to three hours, as nutrition is essential in sustaining vital powers. This being a very depressing disease, I think it advisable to use stimulants early, before exhaustion and prostration occurs. In my opinion, there is no stimulant which acts quite so well as whiskey and strychnine. Whiskey in from thirty minisms to one-half an ounce every three or four hours acts most charmingly. Nothing will support the heart and tone up the general nervous system like strychnine every six to eight hours as indicated. To reduce the temperature I always use the sponge bath, one-third to one-half alcohol in water, and sponge the patient as often as is necessary to keep the temperature down. I am opposed to the use of coal-tar products, as they are all more or less depressing to the heart, which now needs support. An ice cap may be placed on the head, as this not only aids in reducing the temperature, but prevents brain complications. Given internally the tincture of iron in combination with quinine may be used throughout the attack with great benefit. In some cases of laryngeal diphtheria the inhalation of steam or unslacked lime will often give relief.

4. Local Treatment.—The chief aim in local treatment is to prevent or limit the action of the bacillus. The throat

should be kept clean by the use of listerine or borolyptol as a frequent gargle, and mopping the throat every two or three hours with a 50 per cent solution of peroxide.

The following prescription I find very valuable:

Tincture of iron, ½ to 1 drachm.
Acid carbolic, 5 to 10 minims.
Chlorate potash, ½ to 1 drachm.
Glycerine, ½ ounce.

Sig. Aquæ Q. S. to 2 ounces.

Teaspoonful. Gargle and swallow every three or four hours, not allowing any liquids to be taken afterwards for some time.

If the nose is involved this cavity may be frequently irrigated with weak saline solution and the following spray used:

Carbolic acid, 8 minims.
Menthol.
Eucalyptol aa. 1 to 2 per cent.

Sig. Liq. alboline Q. S. 2 ounces.

Spray nose and throat every three or four hours. In case there is extention into the larynx the same general treatment with the above spray can be used. Inhalations of steam or fumes of unslacked lime is beneficial, being directed by a funnel or placed under the sheet. In case these means fail intubation or trachæotomy must be resorted to. For the purpose of intubation every physician should have an intubation set as it will well pay for itself in his first case. It is much more preferable to trachæotomy, being easier to perform, requiring less after-treatment and more readily submitted to by patients and parents.

After-Treatment.—The after-treatment consists in complete disinfection. The clothing of the patient should be changed after giving a bath and the patient changed into another room. Everything that can should be boiled, preferably in a 2 per cent carbolic solution. Everything else should be left in the room and the room then made air-tight

by plugging all crevices with paper. The formaldehyde gas is then pumped into the room through the key-hole for one or two hours and left for twenty-four. After this the doors and windows should be opened and the room scoured and washed. This should be left open and unoccupied for several days. If you have not the means for using formaldehyde gas, then sulphur, about four pounds to 1,000 cubic feet, should be burned by placing the sulphur in a basin surrounded with water, leaving the room closed for twenty-four hours and then thoroughly washed. If the prophylactic treatment is carried out by keeping all who have been exposed at home for ten to twelve days and giving them injections of from 500 to 1,000 units of antitoxine, together with thorough disinfection afterwards with formaldehyde gas, there will be comparatively little danger of the disease spreading and diphtheria epidemics greatly lessened.

(See pages 31-35 for discussion.)

Radium and its Application to Medicine.

BY CHARLES BASKERVILLE, CHAPEL HILL, N. C.

Director Chemical Department and Smith Professor of Chemistry, University of North Carolina.

NOTE.—During the meeting of the North Carolina Medical Society in Raleigh, Dr. Charles Baskerville gave a lecture with the above title. It was illustrated by numerous experiments, showing the most modern conceptions of this scientific marvel. Professor Baskerville had not written any formal address, but spoke from briefly headed notes. The apparatus used in the technique of radium was shown to the large audience. Preparations of radium compounds of the highest activity which have come from Curie's Laboratory in Paris, were exhibited by Dr. Baskerville through the courtesy of the American Museum of Natural History in New York, where Dr. Baskerville carried out some extensive investigations, on the action of radium on gems and minerals, during the summer of 1903.

From what we have learned as to the resemblances among the radium and other rays, it is not unreasonable to anticipate specific physiological effects from radio-active substances. That this is true, however, was accidentally and painfully discovered previous to the observation of Walkoff,[1] who found that the radium rays inflamed the skin similar to the Rœntgen rays.

Becqueral carried a small tube of an impure radium preparation in his vest pocket for six hours. A few days later he observed a reddening of the epidermis of the abdomen opposite the location of the pocket in which he placed the radium compound. It was not long before the inflammation became pronounced, and an ulcer developed which required several months for healing.

[2]Giesel exposed the inner portion of his arm for two hours to 0.27 grams of a radium preparation, enclosed with a

[1] Photogr. Rundscau, October. 1900
[2] Ber. d. deutsch. chem. Ges. 33,3570, (1901).

double celluloid capsule. After three weeks the skin reddened, blisters formed and the epidermis pealed just as with a burn. The growth of hair was also destroyed, and it did not come out anew, although a smooth, white skin reformed. These observations were verified by Becquerel and Curie. "The action of radium upon the skin can take place across metal screens, but with weakened effect."[1]

Not only did Giesel also observe the action of radium upon plant growth, noting that the leaves turned yellow and withered away, but he discovered the action of radium rays upon the eye. If a radio-active substance be placed near the eye or temple, when the person is in the dark, a sensation of light fills the eye. On the announcement of these observations the secular press hailed a cure for blindness. Heinstadt and Nagel and Crzellitzer, however, have studied the phenomena carefully and demonstrated that the center of the eye is flourescent by the action of the radium. This gives the sensation of light experienced.

The effect upon the eyes produced by radium is a diffuse brightness, somewhat like that one experiences when he steps from a dark to a brilliantly lighted room, with the eyes lightly closed—that is, the interior of the eye begins to flouresce. The cornea, the lens, especially the vitreous humor, and perhaps the retina, are involved. This is quite different from the effect of Roentgen rays, which act upon the retina alone. A pure radium salt acts with such intensity that the effect may be obtained by placing the chemical back of the head, and without the intervention of the optical apparatus at all. London, in St. Petersburg, aroused many hopes by his observations, but Groeff, in Berlin, on extending the experiments, came to the same conclusions given above. The Becquerel rays may produce an apparition, but it is not possible to secure a picture, as they are deficient in a charac-

[1] Madame Curie's Thesis.

teristic property of visible light—namely, refraction—as we have learned.[1]

There is no doubt but that blind people whose retina is intact are sensitive to the action of radium, but those with diseased retina experience absolutely no luminous sensation. Javal[1] has suggested that blindness with alteration of the retina can be distinguished from that due to glaucoma or corneal capacity, because patients with the latter condition see radium rays as well as do those of sound vision.[2]

Rollins[3] has suggested the use of radio-active substances as a substitute for the X-light, having prepared a capsule with an aluminum front and back of comparatively non-radiable metal which could be worn over a lupus or superficial cancer.

Danlos,[4] of the St. Louis Hospital, Paris, apparently was the first to apply radium in the treatment of certain affections of the skin similar to the treatment with Roentgen and the ultra-violet light rays (Finsen). A case of lupus of the face was treated a day with radium chloride (19000X). The disease disappeared with the formation of a smooth, white cicatrix, blending into the surrounding tissue.

Hallopeau and Gaud[5] report that too prolonged application of radium led to atonic ulceration, which lasted for five or six months. Also, that ulcers or normal tissue can be avoided by proper technique and care.

Blandamaur has also used radium in lupus.

Danyz[6] found that radium destroys the skin of guinea pigs and rabbits, but subcutaneous and muscular tissue do not

[1] See Karewski in Marckwald's "Uber Becquerelstrahlen und radio-active Substanzen," Moderne Arztliche Bibliothek, Heft 7. Berlin, 1904.
[2] Revue Internationale Electrotherapie et Radiotherapie, November and December. 1902
[3] Radio-active Substances and Therapeutics. Medical News, January 25, 1902.
[4] Revue 1 'Etrectrotherapie et Radiotherapie, Nov. and Dec., 1902. Ann der Dermatologie et der Syphillis, July, 1902.
[5] *Ibid.*
[6] Compt. rend. 136, 461, 1903.

seem so sensitive as skin. Nervous tissue is sensitive to its action. A glass tube containing a radium salt, which was placed against the skin over the spine, produced death in young animals. In older animals, the osseous tissue seems to protect the cord against the radiations. Danysz and Bohm showed that various larvæ and embryos are profoundly modified in their growth, many being killed, when subjected to the radiations; others developing into monstrosities, because of unequal stimulation. The latter observer found that the radiation exercises an especially intense action on tissues and cells in proliferation. Non-fertilized eggs may undergo more or less parthenogenetic development and give rise to a typical formation. In some cases animals, whose skin has been burned by the rays, the hair appears to be forced into rapid growth.

Holzknecht[1] reported psoriasis and lupus hypertrophicus as cured by both X-rays and radium. The radium was superior, if anything. Epithelioma on the cheek also rapidly subsided. Apparently, the healthy skin in the neighborhood of these affections is not seriously interfered with. Radium seems to produce degenerative processes in the cells of the intima of the blood vessels, as shown by Scholz, as characteristic of the Roentgen rays. On account of the degeneration there ensues a rapid dilation of the capillary and precapillary vessels. These observations were made upon a remarkable case of telangiextesia.

A committee appointed by the Vienna Academy of Science to investigate the results of the treatment of cancer with radium reported, says *The Popular Science Monthly,* "that in nine cases in which the treatment was used abatement in the cancerous swelling resulted, and in two of these cases the swelling had not reappeared after five months' time. A case of cancer of the palate was much improved by treatment.

[1] Wirkung der Radiumstralung Hautkraukheiten, Vienna Klin Wockenschrift 16 27. 1903.

The use of radium is not recommended when an operation is possible." Numerous other cases of the beneficial results of the radium treatment have been reported. The press reports from the London Cancer Hospital do not appear to be so encouraging.

Exner[1] applied a capsule containing a radium preparation by fastening it to the spot with adhesive plaster. The nodules following an operated melano-sarcoma appeared when treated twenty-five minutes with the radium. This disappeared before the superficial tissues exhibited the necrosis from the action of the rays. A capsule containing radium bromide, protected from moisture by a rubber coat, was applied to a case of epithelioma, at the corner of the mouth, six times within seventeen days. The tumor perceptibly diminished, the ulcer began to heal over. At the end of the month it apparently vanished. This physician also reports on the radium treatment of six cases of carcinoma in the œsophagus.[2]

The technique was the introduction of a scrap of radium embedded in dammar and fastened to a No. 16 sound. The increased permeability of the structure noted in the five cases was probably due to necrosis of the structure tissue under the influence of the radium, thus giving permanent results.

Morton[3] favors treatment of malignant disease in its earlier stages by radiation in preference to operation. Robert Abbe[4] summarized his experience with radium in the treatment of lupus by saying, "that lupus can usually be cured by a few applications of radium, varying in number, and frequently with the strength of the specimen. Superficial epithelioma, rodent ulcer and small recurrent cancer nodules can be caused to disappear by cautious application, but if

[1] Radium Treatment of Malignant Tumors and Cutaneous Affections. Vienna Klin Wockenschrift 16. 27, 1903.
[2] Semaine Medicale, Paris, 24, 9, 1903.
[3] "Treatment of Cancer by the X-rays with Remarks on the Use of Radium." International Journal of Surgery, New York, Oct., 1903.
[4] Yale Medical Journal, June, 1904.

mild preparations are used, very little effect is seen. Indeed, the judicious use of Roentgen rays is more efficient along the same line of results, and with only brief applications."

Seventy-five milligrams of radium in a mica-covered box were bound to Goldberg's[1] arm for three hours. Four days later a red patch developed, changed into a necrotic ulcer on the fourteenth day and other ulcers developed on different points of the arm, also on the chin, groin and hand. The healing process commenced first in the later patches. The ulcers were slow but sure in the healing. The action of the radium was probably due to its activity and not to its bulk. The exposure and the subsequent phenomena were painless. The necrosis developed without fever, and the ulcer had a peculiar morbid character. Rodent ulcers were cured.

Cleaves[2] reports the cure of several cases of recurrent epithelioma, rodent ulcer type.

Williams,[3] who has carried out the most systematic investigations on the medicinal applications of radium compounds, calls attention to the fact that radium possesses less value in diagnosis than X-rays, as it does not differentiate so clearly. He employed it as a therapeutic agent in nine cases of skin disorders, two of eczema, psoriasis, four of lupus vulgaris and one of acne. Success was not so good in the eczema, although there was some improvement. In lupus, the results were satisfactory; also with acne. This exceedingly important paper has reference to other work, which treats of thirty-three cases, which show that radium is useful in treating some skin diseases and superficial new growths, including in this class those of the cervix uteri. He endeavored to differentiate as to the value of the different rays by isolating the beta and

[1] "Zur Frage der Beziehungen Zwischen Becquerel-strahlen, und Hautaffenktionen." Goldberg and London (Dermatologische Zeitschrift, Berlin, 10. 5 1904).

[2] Thirteenth Annual Meeting of the American Electra-Therapeutic Association, Atlantic City, September 24, 1903.

[3] Some Physical Properties and Medical Uses of Radium Salts, with a Report of Forty-two Cases Treated by Pure Radium Bromide. F. H. Williams. (Med. News, New York, February 6, 1904.)

gamma rays. The burning power he attributes to the beta, rather than the gamma, rays. As a result of his large experience, he regards the therapeutic action of radium as of greater value than the X-rays, excepting that the latter is able to cover large areas. He concludes as follows: "If the results obtained by radium prove permanent this new therapeutic agent will be largely used instead of the X-rays, but the two will supplement each other. Certain diseases promise to yield more readily to treatment by radium and others to X-rays. A disease that has attacked different parts of the body of a given patient may be better treated in certain regions by radium and in others by X-rays, and it is quite possible that in some cases the two remedies used together on the same area and at the same sitting may accomplish better results than either alone."

Truman Abbe[1] remarks that "the radium rays, no doubt, should be classed with the X-rays, the coli serum, Adamkiewicz serum and the various caustics. These have given cures in a few cases of inoperable and malignant diseases, but they are far too uncertain to be used except when operation is out of the question."

The etiology of cancer is not yet clearly understood. It appears from the sifted evidence that so far radium—"a transcendentalized pocket edition of the X-ray"—according to Piffard, offers little hope as a permanent cure for that dread disease, especially after it has become deepseated. It is generally accepted, however, as a fact that temporary relief from pain and a retardation of a cancerous growth may result from its application. Its portability, easy dosage, remarkable localized action, render these a permanently valuable addition to the therapeutic arsenal, for the technique is simple.

The procedure of Williams[2] is herewith given: "When not in use the radio-active preparation should be kept in a

[1] Wash. Med. Ann. 2, 363, 1904.
[2] The Medical News, New York, Feb. 6, 1904.

thick lead box or envelope. When in use, preferably, all sides except that next to the diseased tissue, should likewise be covered with thick lead to protect the operator. The compound should not be brought near photographic plates, unless it or they be within lead, as it would injure them.

"*Method.*—The method of using the radiations from radium is simple. If the strongest action from the radium is desired, the metal box containing the salts is placed on the parts to be treated; in this the box should be first covered with a thin rubber cot, or other suitable substance, which can be readily removed, so that a new cot may be used for each patient and the old one burned up. By this means, the radium capsule does not come in direct contact with the part to be treated, but is separated from it by this new and clean covering. If a weaker action of the radium salts is indicated, the capsule should be placed at a greater or less distance, according to the needs of the case, the intensity of the rays dminishing as the square of the distance.

"*Exposure.*—It is important to remember that an overexposure of a part may result in a burn, and that this may not become evident in several days after the exposure has been made. Further, that the exposures differ for different diseases, even superficial ones. Experience, therefore, is necessary to judge not only the proper length of exposure, but also of its frequency.

"*Length and Frequency of Exposure.*—Exposures must in some cases be longer, in others shorter, and the frequency with which they are given must vary. In some cases the treatment should be pushed; in others harm, rather than good, would result from this procedure. The exposure, then, must be adapted to the special case, but as a general rule, it may be said that when the beta and gamma rays of pure radium bromide (I have discarded the use of the weaker salts) are used together for the treatment of superficial lesions, and the radium capsule is placed on the part to be

treated, the length of exposure should be one-half to two or three minutes, according to what the practitioner desires to accomplish.

"Exposures should not be made every day. Two or three times a week seems to me the safer procedure, as by this method an interval is given during which the progress can be watched.

"An exposure of many hours would be necessary if weaker forms of radium are used—that is, radium of 1,000 or 8,000 activity—before any special results could be obtained, and these weaker forms would not be sufficient, as compared with pure radium, so that they need not be considered. Pure radium bromide is none too strong for the work to be accomplished in certain cases; in those in which the full strength is not necessary the radium capsule can be placed at any distance desired and the exposure can also be shortened."

Immediate Repair of a Lacerated Perineum.

BY P. A. NICHOLSON, M.D., WASHINGTON, N. C.

There are few, if any physicians, no matter what degree of skill they may possess, who if their practice has been at all extensive, in the branch of obstetrics, but have had on some occasion a slight or severe laceration of the perineum, due to child-birth; and I venture to say that the more careful the majority of us are in our post-partum inspection and examination, the more lacerations we will be conscious of having. I do not mean to imply, that experience, good judgment and requisite skill, will not prevent in many cases a laceration; yet when all that is granted, and every precaution is taken, every measure employed to prevent this all too frequent accident, in some cases we do have such an extensive laceration of the vaginal floor and outlet, as to sometimes cause serious complication, not only of the puerpereal period, but to delay the return to normal activity and impair perhaps permanently the supporting structures of the more important sexual organs above. These are complications which happen in the hands of the very best and most learned of obstetricians, and as such, are looked upon as unavoidable, and are most usually repaired immediately and skillfully.

Given a small undilated parturient canal, a large unyielding head, severe, prolonged uterine contractions, and a rapid birth, over or rather through, an unprepared resisting perineum, most usually the shoulder completes what the head only begins; should the floor of the vagina be torn and lacerated half way to the mouth of the uterus, and the perineum lacerated from fourcette through sphincter ani, and the rectal wall divided upwards for an inch or more, the most unsophisticated of us could tell, that something out of the ordinary had evidently happened, and would naturally be-

gin to think of some plan for the repair of the damage, and upon the skill manifested and the immediate (when I speak of immediate I mean a period not to exceed eighteen hours) coaptation of the divided structures will depend not only the future comfort, but the health of that individual to the eternal damage of some gynecologists financial welfare.

I shall not dwell too lengthily upon the extreme type of perineum laceration, for in these cases a most superficial examination will realize the necessity for some surgical attention, if not the extent of the injury; but shall pass to the more frequent, less severe and often unrecognized and unrepaired types of the same accident, and this is where a superficial examination only shows a slight tear in the external portion of the so-called perineal body, extending from the fourchette to a greater or less degree posteriorly towards anus. A superficial examination would only show a slight nick or tear externally, or when the post partem inspection is left to nurse as 'tis often done, the report is made that everything is alright and not torn. Such welcome news is often to a tired and worn-out doctor like oil upon troubled waters, but the frequency of such favorable reports should not make us egotistical, but should be taken "cum gra—no salis." Now 'tis our duty in each case after the delivery of the child to make a thorough and satisfactory examination, carefully noting the extent of the internal as well as external laceration of the parts, if any, and then to decide if the nature of the laceration is of such degree, that if unrepaired, it will in any way destroy or impair, through relaxation of vaginal wall or integrity of so-called perineal body, the support of the uterus and its appendages, or in future be liable to allow rectocele or cystocele to develop.

The examination should be made with the patient's buttocks at the edge of the bed, knees wide apart and flexed, some suitable instrument supporting anterior wall of the vagina sufficient to allow thorough inspection of floor. If there should

be any doubt as to the advisability of operative interference, then by all means repair at once. The operation is much more easily performed then, and the present and after results to a high degree more satisfactory to the welfare of the patient.

Nicety of coaptation is the prime object to be sought, not only of the surface of the vaginal mucosa, but of the deeper parts of the torn structure, so placing the sutures from top to bottom of cavity that upon approximation of divided parts there will be no pockets to hold pent-up serous fluids, or to catch and retain vaginal discharges, this with a sufficient degree of cleanliness, will insure satisfactory results.

The operation in itself is a very simple one, and this paper is not intended to deal in *its* technique, nor does it attempt to bring to your notice any new or orginal methods, whereby the perineum may be either saved or repaired, but having seen in my limited experience so many cases of unrepaired lacerations, resulting in the relaxation of the vaginal walls, producing prolapse of associated important organs, and hence a continued state of semi-invalidism, and general state of mental and physical impairment, that I have attempted in this very brief paper to bring to your attention the importance, nay the necessity, of a thorough and complete personal examination and inspection of all cases after delivery, that we may do our full duty in every particular to those who have intrusted themselves to our care at this most important epoch in the life of every female. For it can be truly said in these cases "a stitch in time does save nine," and really nine times in the saving of future discomfort to these our most appreciative of patients.

(See page 61.)

Quinine.

BY JAMES M. PARROTT, M.D., KINSTON, N. C.

From long and rather close examination, Iam persuaded that the physiological action of quinine is but little understood by the average practitioner. It is not possible to witness the universal and indiscriminate use of quinine for all kinds of diseases, and at the same time believe for a moment that its effects on the system is understood in more than a meagre sort of way. I am sure all present have seen it given for almost every imaginable disease. In a general way it acts as all the bitter tonics. In small doses it promotes the flow of saliva and stimulates digestion. It adds force to the heart-beats and stimulates the vosoconstrictor nerves in small doses. In large doses it is a direct depressant.

Quinine checks diaphoresis by paralyzing the leucocytes, while it seems not to have any effect on, or, if any, to stimulate the leucocytes which are out of the blood vessels. This fact (which is hardly of practical value) along with the idea that immoderate doses lower temperature, soon led to its use in pneumonia, coryza, etc. In my opinion, no conclusion is more erroneous. While it may, in moderate doses does, (and in pneumonia particularly, no one would think for a moment of giving it in very large and consequently depressant doses) , really do these things in a limited way, yet in these diseases its disadvantages decidedly outweigh its advantages. We all know that the leucocytes in the blood play a very important role in the recovery of pneumonia patients. Quinine diminishes these. It also when given in moderate doses renders oxygenation, which is essential to cure much less easy, while it checks metabolism by interfering with protoplasmic oxydation. The reduction of visible leucocytes to one-fourth, as Bruce says it will do, along with its effect

on tissue change through diminution of oxygenation, should condemn it absolutely in every case of pneumonia, except perhaps in the very earliest stages of the attack. Even then its efficacy is doubtful. The administration of quinine is often followed by decided improvement in this disease, and the attending physician very naturally attributes it to his favorite drug. Careful observation will show that nothing could be more erroneous in most instances.

I am convinced that many, many times quinine is given in simple ephemeral fever on the supposition that the attack is a malarial one. A great many physicians, indeed, I expect that at times all of us have reasoned that since a given fever disappeared a few days after quinine is given, that hence it was malaria. When this statement is made in the absence of the patient, we all smile, yet we are all more or less guilty. We form a habit of diagnosing every fever case as malaria until it proves itself otherwise. These observations are confirmed by the following case, which occurred in my own practice some time ago:

I was called to see little H., age 4, one morning about 9 A. M. His mother stated that he had a chill that morning, accompanied by nausea and vomiting, and followed by fever. When seen he presented a furred-coated tongue, and temperature 105. I prescribed a purgative and quinine. The next day he was in his usual good health. Just seven days after I was called again. He presented same symptoms as before. I prescribed as before, with good results. Seven days thereafter I was again called to same patient suffering as before, in spite of quinine given the day and night previous. The mother incidentally remarked that the chill occurred about 3 or 4 o'clock A. M. I have never believed that malarial chills develop at night except in rare extraordinary cases. I immediately examined blood, no malarial organisms or pignant granules were found. Purgatives were administered, but no quinine given. Repeated blood examina-

tions during the day showed no evidence of malaria. Large copious stools showed peanuts, orange pulp, apple seed and pealing, etc. Diagnosis then easy; from a close inquiry I developed the fact that his father, who was at home only once a week, give him freely of these every Sunday. This error in diet was discontinued, and the patient has never a return of "chills." My early diagnosis of malaria was erroneous. The prompt results obtained were due to the purgative and not the quinine.

Another very interesting case came under my observation some time ago which illustrates the idea under discussion, but in a somewhat different light. I was called by a colleague to see Mrs. S. in consultation. She gave a history of chills, fever and sweats. After a casual examination, I must confess the case looked very much like malaria. However, I knew the family physician was up-to-date and an able man, and I hesitated in making a diagnosis without the aid of the microscope. A careful blood examination was negative as to malaria, also as to typhoid fever. A systematic examination of the patient, however, showed an abscess which had begun very slowly after labor in left broad ligament and had burrowed upward in front of the psoas muscle, and was opened in the lumbar region, extroperitomally, of course, and the patient made uneventful recovery. This case was also interesting because no symptoms were noticed by the patient until full two weeks after confinement.

When one treats every fever as malaria until it proves itself otherwise, one uses the therapeutic action of quinine diagnostically. The writer called the attention of the profession to this, as a course which should be condemned, several years ago. It is not only unscientific and unsatisfactory, but it is capable of great damage also. Simple ephemeral fevers, especially those of the old so-called "gastric" type, are unquestionably aggravated by quinine, and the preponderance of medical evidence is against its use in typhoid fever as tend-

ing ultimately to increase the danger of hemorrhage, also to disturb the stomach, and to aggravate or produce very disagreeable nervous symptoms.

From every point of view, its indiscrimnate use in fevers is to be severly condemned. A diagnosis of any fever can be made quicker, and much more certain and satisfactory by the use of the microscope, and a careful study of the case as it presents itself, than by the use of quinine. In fact, it can be stated as an undisputed fact that a diagnosis can not be made with a degree of certainty by its use alone.

A case came under my notice some time ago which very nicely illustrates the point in question. The patient, a young man, when seen by his family physician, was told that he had malaria, and quinine was prescribed. The fever persisted, and after ten days or two weeks the doctor decided that in spite of all his hard work, "it (the fever) had run into typhoid." I saw him at the beginning of the third month. After a careful examination of the lungs a diagnosis of tuberculosis was made. This was confirmed by microscopic examination of sputum. He died of tuberculosis. Widal reaction negative in this case. In this patient quinine-diagnosis was worse than useless.

There are only three ways by which typhoid fever can be diagnosed, and those are: First, clinically (symptoms, physical examination of patient, etc.); second, chemically (Diazo-reaction, which in my hands has most often been a failure, and is not to be depended upon in my opinion); thirdly, microscopically (Widal reaction, etc.), which is very reliable. Thus you see quinine is not one of them.

Of course, quinine is more generally and often used for the treatment of malaria and its various manifestations than for any other purpose. Since a 1-20000 blood solution has been demonstrated to be a sufficient antidote for malaria, the question very naturally arises, why are comparatively enormously large doses so often and so generally given? A

close chemical as well as theoretical study of the question will easily and quickly convince one that such doses are not only unnecessary, but are positively dangerous. Some years ago Koch attempted to prove that malarial hemoglobinura was nothing less than quinine poison. Personally, I have no patience with this view, yet I am sure under certain conditions, which I discussed at length in a paper on Mal. Hem., which was prepared for this society some time since, and will not discuss now, this may be apparently produced, or rather, brought out by very large doses. This, however, would be impossible when the liver and kidney function properly. Without question there is a quinine hematuria, but I can not conceive, from a practical standpoint based on the physiological action of the drug, how it can produce a true hemaglobinuria.

How does quinine act as regards the malarial organism, and has it any effect on the toxic substances of this parasite if it produces such a substance?

The answer to the first section of the query, it was formerly considered that quinine acted as a simple antiseptic or germacide, that is, by its direct action on the organism. This conclusion was evidently reached by no particular reason. A. F. A. King has advanced the idea that its action in the blood is due to its flourescence. Its blood solution transmits only violet rays, and it is through these that its specific effect is obtained. This probably explains why quinine has no effect on the crescent malarial organisms, these being chiefly found in the darkest recesses of the body (spleen, liver, bone-marrow, etc.), where its fluorescent properties have no effect. That sun light, or a light that approaches it most closely from spectroscopic standpoint, is essential to the development of the malarial organism is an established fact; hence malarial chills are very seldom, almost never developed at night unless the patient be exposed a great deal to strong arch light. Acting on this flourescence

theory, I have been using methylene blue with my quinine for some time, and I must say that I think I have gotten some good results from this combination.

In answer to the second section of my query, that as to the effect of quinine on the toxic substance formed by malarial organisms, I will ask is there produced such a toxic substance? While this question has not been positively determined, the preponderance of medical authority is certainly on the side of those who claim there is. Some time ago, Querollo demonstrated that the perspiration from patients suffering from malaria would produce genuine paroxism; and hence concluded that toxic substance was present and in the perspiration. This may not be a rational conclusion. Ross has demonstrated that hundreds of malarial filaments can collect in the salivory gland of the mosquito, and it is possible (though not demonstrated or even suggested as yet), that these filaments could be in the perspiration. Such high authorities as Roque and Lemoine tell us that large quantities of these toxic products are formed and are found in the blood, and they hold further that quinine acts on these products, assisting in their elimination through the kidneys, just how, they do not say.

Golgi has thoroughly demonstrated the fact that quinine destroys the organism at all stages of its development. Marchiafava and Biguomi believe that the intracorpuscular parasites are incapable of further development after giving quinine. This observation is interesting, and is of some importance in determining just when quinine should be given. All who are familiar with the growth of the organism, and who have watched it after the administration of quinine know that even a single moderate dose will terminate the growth of a group if given just before its manifestation. Laveran, Golgi, Moneberg and others have shown that quinine acts more efficiently when given when the parasites are young and free in the blood. These observations lead us to con-

clude that it is probably best to administer quinine in several doses just before a paroxism.

While it is not my purpose to discuss the proper dosage, and the manner in which it is to be given, yet it is interesting and valuable to note that most all authorities agree that six grains in twenty-four hours is a sufficient amount after it has been given one week in full doses for æstivo-autumnal malaria.

It is very questionable whether quinine is to be used with benefit as a prophylactic for malaria. Such a high authority as Celli has spoken strongly against it. It is certainly safer and more scientific to destroy its carrier, the mosquito, or else to protect ones-self against its bite.

In conclusion, permit me to say that I do not think that quinine is very frequently indicated except for malarial infections, that sometimes even then it is probably best not to give it—notably in the asthenic type or variety of malarial hemoglobinuria; that its indiscriminate use is harmful, and that as malaria has gotten to be the diagnostic scape-goat, so quinine has become the therapeutic scape-goat of medicine.

(See page 25.)

Infection.

BY I. W. FAISON, M.D., CHARLOTTE, N. C.

Mr. President and Gentlemen of the North Carolina Medical Society:

I am here to-day to discuss with you one of the most important subjects that interest the medical men of our times. The subject that I have selected is Infection as it relates to infectious diseases. While it covers a very broad sweep, I shall endeavor to condense it within the scope of a short paper, that it may meet the desires of this Society and your good pleasure. The best minds of the most learned and painstaking medical men of the world are daily delving and nightly working to solve the mysteries that are confronting us. Almost daily some honest investigator proclaims some new theory that may or may not be true. The changes are wrung frequently, and that which may seem a positive fact to-day vanishes as readily on the morrow. If you try to keep pace with the risings and fallings of these assertions as they appear and you are not well grounded in your medical faith, you will become skeptical. Be faithful to the end, for these rapid evolutions will bring, in the end, only good to our store of medical knowledge. The germ theory to-day is a fixed fact, and through this theory comes our knowledge of infection, and the relations between the two in the production of the many diseases that infest the human system. With this fact or theory well established as a fixed principal in the our medical knowledge, we necessarily must reach out and seek for each specific cause of the different diseases and the sources or channels through and by which these infections enter the body. So far as I am able to learn up to the present time there are many specific pathogenic germs, producing similar pathological tissue changes in the body whenever these

germs enter the body, and find a nidus suitable for them to reproduce themselves; and that there are five well established channels through and by which these specific causes enter the body, namely:

1st. By Contagion. 2d. The Communicable. 3d. The non-Communicable. 4th. By Abrasion. 5th. By Intermediary Hosts. I will discuss these different channels separately as briefly and as intelligently as I can, although I will try to be elaborate enough to clearly convey what I mean.

The first: by Contagion. I desire to lay down the fundamental proposition that all contagious diseases are infectious, but that all infectious diseases are not contagious. There is a distinct and wonderful difference in the meaning and usage of these words, infection and contagion, when used by intelligent and scientific pathologists and bacteriologists. The great majority of all the diseases that the human race is heir to are infectious, while on the other hand very few, say five or six, belong to the group of contagious diseases. That you may more fully catch the idea that I am trying to inculcate, I will mention a few diseases which represent a perfect type of this group of diseases. Namely: Variola, rubeola and scarlatina. To-day the specific germs or protozoa that cause these diseases that I have mentioned are not isolated. Still we know they are some form of protozoa belonging to a low order of animal life, but which are still beyond the skill and knowledge of the bacteriologists and pathologists to isolate and name. We also know that they enter the body through the channel of contagion. By this I mean that these protozoa can and do escape from the person effected and pass directly through the air current to and into the body in close proximity that is not immune, in spite of every known means by the most absolute asepsis that can be employed. In other words, complete isolation is the only way that we can prevent non-immune persons from contracting contagious diseases. The second channel is the communicable. Such diseases as

typhoid fever, tuberculosis and diphtheria are splendid types of the diseases that compose this group. The pathogenic bacilli that cause these diseases are absolutely isolated and named. I refer to the typhoid.

The tubercle and the Klebs-Loefler diptheria bacilli. It took years and years to establish these facts, but to-day it seems to all that it has at last been correctly settled. The interesting part of it to us is how do they get into the body. We no longer consider as tangible the idea of contagion. They are not contagious and do not pass into the body by that channel, but it is now an accepted fact that they are communicable, and that by this way they are carried from one person to another. By the communicable channel I mean that the bacilli are thrown off in the excreta or sputa and by means of water, the hand, a toy, or in the dust, the bacilli are communicated to some other person and the disease in kind is produced. The third is the non-communicable. The diseases of this group are neither contagious nor communicable and just how they are reproduced I do not know, we do know that they are not contagious nor communicable. Non-immune persons in the same room with persons sick with this class of diseases do not contract them. Acute articular rheumatism and purpura are types of this group. For my purpose to-day I will only mention acute articular rheumatism. To me this is one of the most interesting. Earnest and careful investigations are being made concerning acute articular rheumatism just now. The consensus of opinion is, that it is due to some specific micro-organism. The war is waging to settle the specific cause. Anders says the weight of authority is in favor of a diplococcus as its principal cause. F. Meyer insists that it is a peculiar infection due to a streptococcus. Tibulet, Wasserman, Paine and Ryffel in their various investigations found a tiny micro-organism frequently present in their cases, which they were not able to distinguish from other forms of streptococcus. Walker and

Ryffel later have called this organism micro-coccus rheumaticus. We must in patience wait for further investigations and hope that it will be settled correctly. Upon this settlement depends the fixed position as to its curability and its chronicitiy. I am of the suspicious opinion that when this is done the literature of chronic rheumatism will have to be rewritten and perhaps left out of our text-books.

The fourth: By Abrasion. The diseases that represent this type are septicæmia, pyæmia and puerperal fever. It is important to fully realize and fully estimate the dangers of this channel. That we may be wise and cautious enough to prevent the ingress of the specific germs that produce these diseases of the body. The old adage that "cleanliness is next to Godliness" holds good here.

The Fifth: By Intermediary Hosts. The type of the diseases that are transmitted in this way are yellow fever, dengue and malarial fever. The hosts are rat-fleas, flies, house and tsetse, ticks and mosquitos. I will mention only the malarial fevers. For the past few years this subject has been in the crucible of investigation. The dawn is beginning to break and I feel that in a very short period the pathologists and bacteriologists will positively enunciate to the medical world the absolute and fixed facts concerning this important malady. Within the past few years great changes have been made in our medical position. The old idea of telluric influences in producing malarial has been set aside. No longer it is claimed that heat, moisture, soil and vegetable matter have to do with the producing of the causes of malarial fever. No longer is the position of miasma, swamp air and the like as causes considered tenable. Dr. Grassi, of Rome, says there is no such thing as malaria. The word plasmodia no longer conveys the same meaning to us that it did just a few years ago; in fact, Dr. Welch suggests that hæmamœbæ would be a decidedly more correct name. With these facts before you, you can and do readily realize how

rapid and complete are the changes that are taking place. Then what and where and how do the causes of so-called malarial fevers generate and become transmitted to the human race? Gen. Ross, U. S. Army, in his investigations in 1897 in Africa, discovered and proved beyond controversy the fact that the mosquito was the channel through which the causes enter the human body. It is to-day an established fact, accepted by the latest and best investigators that this is the only channel through which this special cause of this disease enters the body. Further investigations have proven that of all the mosquito families only four can transmit this cause and of these four only two, the female portion of the tribe, can transmit it—as it is only the female that bites. This branch of the mosquito family is known as the anapholes. The cause of malaria, call it plasmodia ar hæmomœbæ as you like, is reproduced in the stomach of these mosquitoes, carried there in the blood sucked from the person infected; it rapidly reproduces itself, passes out through the lining membrane of her stomach and makes its way into the salivary glands and into the proboscis of the mosquito. When she bites she sticks her proboscis through the skin and this poison, or cause, is thrown out into the body. These hæmomœbæ make their way into the red corpuscles of the blood. These causes are of three distinct types, producing turtian, quortan and estivo-autumnal fevers, according to the type to which they belong. The clinician has been in the lead for some time in regard to malarial fevers and long ago established the fact that quinine is a specific in their treatment. To-day it stands absolutely true. With these scientific facts before us our duty as to preventative measures is plainly marked out for us. Remove all cesspools; if not possible to do this, have the pools covered with petroleum oil once a month; close and fill all unused wells; screen completely every opening in the house in which people live, or use mosquito netting over every bed occupied by a human being;

go indoors at nightfall. It is best to sleep in the second story as it has been well established that mosquitoes go about but little during the day time. They do not fly high from the ground, and a very important fact is that they wander but a short distance from the place where they are brought into existence.

(See page 37.)

Surgical Treatment of Retro—Displacement and Prolapsus Uteri.

BY C. M. STRONG, M.D., CHARLOTTE, N. C.

To any one whose practice has to do with treatment of diseases peculiar to women, the frequency of these conditions must appeal to him. In this category you notice that I have not placed anti-displacements because of their rarity, and the absence of symptoms, together with the absence of treatment, aside from dilation and wearing of tube; which often gives good results in my experience, and too, in anti-displacement, the uterus can't well descend. A retro-displacement, unless held by adhesions, almost always prolapses and a prolapsed uterus, in most cases, is a retro-displaced one. Where the uterine axis is parallel to that of the vagina and supports are weakened, practically speaking, this is a retro-displacement. Two conditions being present, i. e., displacement and prolapsus, two indications for treatment are obvious, restoring uterus to normal position as regards the antero posterior as well as the transverse plane of pelvis. In order then to better understand the treatment we must necessarily study.

1st. The supports of normal uterus.

2d. The causes which produce or increase the displacements.

3d. The symptoms which call for relief.

4th. The operative measures used to accomplish the relief.

1st. *Normal Support of Uterus*—Normal uterus is movable and hangs between rectum and bladder in an antiverted position, the os pointing to the post vaginal wall or lying in contact with it, and is supported, 1st, by ligaments; 2d, by tissue below the ligaments, consisting of muscle fascia, etc. There are eight ligaments, four on each side. 1st. Broad ligaments. Broad folds of peritoneum, closely adherent, which firmly invest the body of uterus to pelvic wall,

they contain a certain amount of muscular fibre, continued from uterine wall, posteriorly they are reflected upward to rectum and posterior pelvic wall, anteriorly on bladder and anterior aspect of pelvic cavity. Possibly to these are ascribed the greatest influence in the retention of the uterus in its normal position, and to their relaxation and failure to restore same, many a failure might be attributed.

2nd. Vesico uterine ligaments, of less importance, stretch from anterior body of uterus to the fundus of bladder and thence to the anterior abdominal wall. The connection between bladder and uterus being less close than rectum and uterus, less would be expected of these as a support. Round ligaments. Extending from each uteri cornuæ between layers of broad ligaments pass into the internal ring and loose themselves in canal of nuck. They contain straited muscular fibres, subject to the influence of the will, they act as guy ropes, preventing the uterus from tipping backwards.

Utero Recto—Sacral ligaments extend from posterior attachment of vagina to uterine cervix to be attached to sacrum, dividing to inclose the rectum. These folds also contain muscular fibres. Between these folds is the pocket known as culde sack. The part they play is very important and are said by Jennings, of New York, to be the only ligaments that are taunt while standing. Between all these layers of peritoneum called ligaments, is cellular tissue, nerves, blood vessels, etc., which have undoubtedly some influence in supporting the utera. Other supports of the uterus are the tubular muscular canal, the vagina which helps to hold up the uterus, this tube resting upon the muscular body the perineum. Anteriorly the body of uterus is supported by bladder which acts as a water cushion, post the rectum acts in the same manner. Two layers of pelvic fascia aid in the good work: 1st. Representing transverse plane from middle of sacrum to lower border of symphisis pubis making roof for vagina and base from bladder.

2d. Representing plane, also transverse from tip of coccyx to the lower border of symphisis, representing a triangle base posteriorly apexanterier which serves to keep the uterus pushed forward in normal position. The perineum has a slight supportive effect due principally to the levator ani and sphincter ani-muscles. The so-called perineal body has very little if any. The movable conditions of abdominal viscera produces a certain amount of tension upon all those ligaments, and upon the post wall of a normal uterus helping thus to keep it in right position. The uterus being a movable organ, the normal position varies, but the mean is, that the longitudinal line of vagina should meet the one of uterus at external os at an angle of 45 degrees. To assist these is the intra abdominal pressure exerting a force upon posterior part of fundus equal to 25 or 50 pounds. We see so many things enter into the support of this organ that we are not surprised that the condition is a very difficult one to cure.

Symptoms Which Call for Relief—A retro displacement and certain amount of prolapses may cause no inconvenience, hence does not call for treatment, but in consequence of interference of circulation, uterine catarrh, with excessive leucorrhœa, also the misplaced ovaries causing all kinds and conditions of pain. Adhesions of uterus and adnexa to peritoneum, narrowing lumen of gut, causing persistent constipation, and pressure on ureters, causing pressure nephritis, which I have more than once seen relieved by operation. All these call for relief.

Causes of Displacements.—Anything that weakens any of these varied supports, or increases the intra abdominal pressure, often due to compression of thorax and upper part of abdomen by corsets, tight dresses, etc., especially if there is a tendency for the fundus to tip backwards. Constipation, by pressing uterus downward and backward, also overfilled bladder. Child birth, by far, most common, causes subinvolution, which enlarges uterus and weakens support. Lac-

cration of perineum and component parts, E. Levatorani Muscles and two layer of fascia being very important supports. Destruction or weakening of the tubular vaginal support, inflammatory condition of adnexa. Occasionally a sudden jump or fall in virgin may produce it.

Treatment—General.—Therapeutical measures are indicated, but will not speak of them in this paper, nor will speak of mechanical support. In some cases (very few) we may get some results, but I am supposing that these have been tried and found wanting, which has in my experience been too often the case.

Surgical Treatment.—Almost every month some man comes forward with a new operation for cure of this condition, which is an eloquent witness that there is no sure cure. This can readily be understood from the above study of the supports of the uterus, which are many and varied. Where the perineum has been torn and the other supports are intact, repairing it will suffice, but we know that the perineum alone has only a limited power in sustaining the uterus, for all of us have seen extensive tears of this organ with no displacements. Where the vaginal tube has been weakened, muscles torn, repair by "Noble Methods" of dissecting up mucous membrane and uniting the muscular fibres and fascia is satisfactory, especially where the levator and sphincter muscles are involved, and in our experience this has a considerable effect in supporting uterus. Where the ligaments are relaxed, Alexander's operation has been extolled, but as we have attempted to show, they have a very small effect in helping to hold up uterus and are rarely alone effective. We expect, and have found this very unsatisfactory when done alone. Another operation, devised by a Boston man, I can't recall, in which the round ligaments are brought through the broad ligaments by forceps, then stitched together back of uterus. We have tried in one case, with fairly good result, where there is not much prolapse I think it very good. Bis-

sell's operation for shortening of utero—sacral, has never been tried, but I think it impracticable, because of the difficulty of reaching them, which would make it a very severe operation. The theory is good.

Where we Have the Extreme Prolapsus and Retro-Displacements with a Giving Away of all the Supports.—We have the ventro fixation in which the uterus is stitched into the abdominal wound, which will certainly hold it there, but what about subsequent pregnancy? We find that it gives a woman great deal of pain because we change one pathological condition to another of a fixed uterus, especially during menstruation. The text-books say is only applicable where the patient has passed the child-bearing period. I am convinced that when we do this operation we should render the patient barren, and we can do this by taking out a V-shape piece from ampullæ of fallopian tube and sew up with fine silk, or can castrate. We owe this much to the subsequent well-being of patient. Then we have the ventro-suspension, which consists in attaching the peritoneal coat of uterus to the parietal peritoneum of abdomen, which forms a ligament, allows some motion of uterus. This has proven the most satisfactory in our hands, although I have had notable failure in this. The advantages of this operation are the ease and rapidity of operation and freedom of danger. This was an extreme condition in which all the supports gave way. The perineum, vagina and cervix were repaired at one operation; at a subsequent one, ventro-suspension was done, and the condition is almost as bad in this extreme case as in the commencement. Nothing has been done to shorten or draw up the broad ligaments, which is one of the main supports of the uterus, and to this I attribute my failure, and for these cases would do the ventro-fixation method with castration and repair of other supports. There is, therefore, no ideal operation for these extreme cases. I have in my mind's eye, and shall try it in such cases, this operation: Repair at first operation all ex-

ternal tears, then shorten the round ligament by bringing back of uterus, then lapping over in form of a cross the broad ligament, being careful not to compress any important vessels, then ventro-suspend and render sterile the woman. The uterus should be curetted at first step in all these operations.

Labor will effectually try any of our methods, and a temporary cure is not very assuring to an operator. Possibly with a more skilled operator these conditions might be different, but in reading the discussions of this subject by our leading operators, we find the various methods lauded and then condemned, which leads us to infer that they all must have some failures, and that their cure is not so easy.

My position as instructor of operative gynæcology and abdominal surgery in North Carolina Medical College has given me some opportunities of trying the different operations, and the number of cases presenting the different phases has been surprising, for every day almost a woman presents herself suffering with some form of this trouble. The results of operations have been, in main, satisfactory, but all have failed. Possibly some one here can offer a better operation, and if, in the discussion which I respectfully invite (because of its importance to suffering womankind) any additional light can be given to us, I shall feel fully repaid for these rather lengthy and random remarks.

A Modern Method of Treating Morphine, Whiskey, and Other Drug Addictions.

BY S. M. CROWELL M.D , CHARLOTTE, N C

Morphinism is a disease induced by the abusive use of morphine. The greater part of this paper will be devoted to this one subject. The Greeks, in the time of Hippocrates, were acquainted with the use of opium. It is said by some that the drug sent to Helen from the wife of Thone, described in the fourth book of the "Odyssey" by Homer, was evidently opium. The Arabs later introduced a knowledge of its properties to India and China, but it was five hundred years from the time of Hippocrates till it was unfortunately found out that opium, like alcohol, would produce pleasurable sensations. Since that time men have used it so indiscriminately as to bring on disease and death. But the advancement for the treatment of this class of patients has been sorely neglected.

Various hypotheses, without clinical verification, have been advanced. Some authors advance gradual reduction; others, rapid reduction; others, sudden withdrawal. Some evolutionists say by elimination of the unfit, and last and most savagely, some writers say it is useless to treat such a disease, the only alternative for the unfortunate victims being to lock them up and let them writhe out their miserable existence as best they may.

Away back in some remote age, some ignoramus asserted that all such unfortunates were liars and thieves, who were beyond redemption by scientific skill. For a lack of clinical advantages, it is a sad fact that this primitive idea still predominates the minds of some of our present-day writers. With due reverence to all, the writer thinks that this is a disease amenable to treatment with good results when the proper method of treatment is pursued, and to his mind the

only rational method is the sudden withdrawal of the drug—the cause of the disease—just as you would as rapidly as possible eliminate the source of infection in any disease—as, for example, in malaria. Under proper conditions this course can be pursued without any danger to or undue discomfort on the part of the patient.

The Aetiology is well understood and will be dismissed with a plea to the physicians to be more careful in its administration to patients, and will give a mild warning for their own benefit by citing them to the case of the well-known English man-of-letters, DeQuincey.

The pathology is only functional, hence, more amenable to treatment than diseases in which the pathological changes are of a structural nature. The entire system is impregnated with morphine and its by-products, and toxines generally, as a result of faulty metabolism and defective elimination. As a result, the functions of the body cells are benumbed and perverted, and when the drug is withdrawn *without* the proper preparation, this perversion of the functions is manifested in a way familiar to all who have witnessed the phenomena. This perversion is marked by fever, acute pains, nausea and vomiting, diarrhea, dysentery, profuse sweats, etc. This is not due, primarily to the withdrawal, but to the general toxemia, and these symptoms have been kept obscure by the benumbing, paralyzing effects of the opium.

These unpleasant symptoms can be wholly avoided by the proper treatment. This assertion, contradictory to the writings of eminent writers might appear rather presumptuous, but the statment has been verified by a careful study and clinical research by the writer. By the gradual reduction methods, it is impracticable to remove the pathological conditions until the patient is in such a condition that he has neither physical strength nor mental firmness to resist the slightest pain or temptation. In all the gradual reduction methods, the patient is given medicines or so-called "tonics,"

all the time he is in charge of the physician, presumably to take the place of the morphine, and is usually sent home with a sufficient amount to last for from one to three weeks. The result most reasonably to be expected too often occurs—i. e., the patient begins to "substitute" himself, and he is not altogether to blame, for the mind is so constituted that when it has been trained for so long a time to do a thing, that it clings tenaciously to that idea. The rational idea is to eliminate the effete material from the system as rapidly as possible, and give medicines only as indicated. Teach the patient while he is still under your observation how to live without drugs instead of encouraging his fixed dependence upon them. *But by the sudden withdrawal method* there is an idea prevalent that there is danger of collapse, heart failure, etc. *This is not correct.* Should the heart derive any stimulus from the morphine, in this stage, the elimination of the effete material from the system, and stimulation of the various cells and glands of the body, and the consequent relief to portal, venous and lymphatic congestion would more than compensate for the stimulus derived from that drug.

The eliminative process is begun upon the patient's appearing for treatment (and by this method you must have the patient confined to a well regulated hospital under the constant surveilance of a trusted nurse). He should have a hot bath, also a simple diuretic. Beginning in the afternoon, give a brisk purgative. Ordinary purgatives will not answer in these cases, for the nerves are benumbed by the opiate, and the good results depend very materially upon the completeness of the elimination. The patient should not have any supper. The purgative employed by us consists of the following

R.—Hydrarg. chloride mite; cascarine; Ext. colocynth Co. aa, gr. X; Pul. ipecac; aloin aa gr. II; strychnine nitratis, gr. $\frac{1}{2}$. M. et ft. capsules No. IV.

Sig. One capsule at 4, 6, 8, 10 P. M.

Give his accustomed dose of morphine till bed time, say, 10 o'clock, when he takes the last capsule. From five to eight hours after giving the last capsule give a hypodermic of nitrate of strychnine, say, from gr. 1-40 gr. 1-20. This aids the heart's action, which is yet laboring against its burden, as well as to increase intestinal peristalsis. Also give some saline cathartic at this stage. If necessary to start up lower bowel action, give an enema of warm water and repeat if necessary. Repeat the saline and enemeta until the elimination by the bowels and kidneys has been well started up. This action upon the organs of the alimentary and urinary tracts does not complete elimination, by any means, but the greatest obstacle has been overcome so that the stimulation of, and the consequent elimination by, the secretory and excretory glands will soon complete itself.

The most of the other disagreeable symptoms that would arise by this or any other method are nervous and mental and of short duration. These, of course, could be allayed for an indefinite time by a dose of morphine, but upon the subsiding of its effects the patient's pathological condition would be just about the same as when treatment was begun, as the morphine would dry up secretions and check the elimination. With properly selected drugs, the disagreeable nervous and mental phenomenæ, incidental to the completion of the elimination, can be avoided and the process of recovery not interfered with. The time required to administer these drugs varies from twenty-four to forty-eight hours after the process of elimination has been well started up. At the end of that time, the patient usually needs but little, if any other, medicine, and will remain comparatively comfortable and free from all craving for the original drug, appetite and digestion good, will sleep sufficiently and his stage of convalescence materially shortened as compared with that by the various gradual reduction methods.

Hyoscine hydrobromate is an ideal drug to control the

patient during the nervous and mental stage referred to above. It acts as a nerve sedative; produces comfort and thus prevents that indescribable feeling incidental to withdrawal of morphine without the proper conditions, but has none of the bad after effects produced by opiates and can be discontinued without any inconvenience to the patient.

The administration of the Hyoscine should be begun as soon as elimination has been well started up, or as soon thereafter as abstinence symptoms manifest themselves. The dose varies from gr. 1.300 to gr. 1-50, hypodermically, at periods varying from thirty minutes to six hours. At first give the smaller doses, and repeat till sleep is induced or the patient is easy and free from pain. As the dose in one patient is no rule to that in another, the physician must be present constantly during the administration of the Hyoscine so as to notice the effects and determine the succeeding doses. The Hyoscine, properly given, does not act injuriously nor have bad after effects on either the body or the mind, therefore, it should be given until the full physiological effects are manifested—i. e., to the point of delusions and hallucinations.

The patient should be kept thoroughly under its influence for a period of twenty-four hours, then its effects allowed to subside. If at the end of this time, the patient expresses a desire for morphine, or if he is uncomfortable, a full dose of Hyoscine should be given and after its effects have subsided it should be repeated, if necessary, until he manifests no more desire for the morphine.

If elimination has been thorough, it will rarely, if ever, be necessary to continue Hyoscine over twenty-four to thirty-six hours. At the end of this time the patient will remain free from all pain and nervousness, will sleep sufficiently, have no craving for morphine, and in a very short while an excellent appetite, with digestive organs in a good shape. It is very rare that any other medicine is needed, and should not be given as a routine treatment. When given, after this

stage, the medicine should be administered with a specific purpose, and the patient made to understand that it is no substitute for the morphine. Never dismiss the patient taking a "tonic." Hot baths, alternating with cold douches, should be given frequently, the kind and frequency depending upon the condition of the patient. They aid in elimination, keeping the skin in a healthy condition, producing sleep and thus exciting the various cells to normal activity.

The diet should be nutritious and easily assimilated. *Do not permit alcohol in any form during treatment,* and thoroughly impress the patient with the danger of using it *after* treatment, for it invites a return to the use of morphine. Teach the patient that he must live without artificial stimulation.

The time required for a restoration to health varies. One person may be more thoroughly cured and fortified against relapse in two or three weeks than another in so many months. This depends, to a great extent, upon how the disease was produced and how anxious the individual is to be cured. With proper warnings of the various sources of danger and the proper mental suggestions, this class of patients can be thoroughly fortified against relapse during his stage of convalescence.

Electricity, in its various forms, adds very materially to the patient's comfort and progress of restoration to health. With some variations, this method can be used just as successfully for the whiskey and other drug addictions.

(See pages 27 to 30.)

Immunity.

BY ALBERT ANDERSON, M.D., WILSON, N. C.

Infection and immunity are correlated subjects, and these have interested an engaged the leading scientific minds of the past century.

What we understand by immunity is that power or ability in the human organism to prevent the introduction and the effects of bacterial poisons. Or immunity may be the result of the work of these bacterial poisons.

It is classified as follows: Congenital, acquired, individual or racial.

Immunity is artificially acquired by the introduction of another infection, as vaccine virus; by the introduction of cultures properly prepared for this purpose; by the introduction of serum from immunized animals. This form of induction is not as lasting as that inherited or produced by a previous attack.

The mechanism of immunity has been put upon many bases, but no basis supports the whole truth, and there is some light thrown on this interesting question through all the theories, from the early one of Cheauveau down to Ehrlick's chemical affinity.

It was thought at one time that anthrax bacilli killed by a mechanical plugging of the blood vessels. But soon a step was taken forward and the fact ascertained that it was the toxines that killed.

Cheauveau advocated a partial truth in stating that immunity came about by the cells of the body becoming accustomed to the presence of toxins—parallel with the well-known fact in therapeutics of the increased tolerance of drugs. Pasteur, perhaps the one of all others who towered above as the loftiest peak in the range of bacteriological workers, advanced the theory of exhaustion, which has been proven by Bitter to have

no evidence at all for its support. And we learn from this theory of the great Pasteur, that it is possible for the greatest to make mistakes.

To my own mind, the most fascinating doctrine is phagocytocis, the principle of which is that "The wandering cells of the animal organism, the leucocytes, possess the property of taking up, rendering inert, and digesting micro-organisms with which they may come in contact in the tissues."

But about four years later, 1888, Nuttall, of our country, put forth a theory involving scientific principles "upon which rests all serum therapy, that of the anti-bacterial action of the animal economy." He proved that the leucocytes did not do the work attributed to them by Metchinkoff, but the serum of the blood was the germicide mainly. In the application of these principles, Behring and Roux got ahead of our countryman and produced anti-toxine diptheria, but let us not forget Nuttall and demand for him equal merit with these two and as high a niche in the temple of serum therapy—for he was the one who first laid deep and sure the basis of this wonderful discovery—which gives immunity and cures disease.

By those who have the best right to know, Ehrlick has promulgated the workings of how this wonderful thing, immunity, is produced, and made it so plain that there is no longer any use to speculate about it, and at this point I am reminded of that witty expression of the lamented Dr. O'Hagan regarding a case of small-pox. "So plain was it that a wayfaring man though a d— fool could tell it afar off." But to me Ehrlick's theory of chemical affinity in both natural and acquired immunity is as difficult to comprehend as the differential diagnosis, to some doctors, between varicella and variola. I quote: "In natural immunity the cells of the animal organism do not furnish side chains capable of forming a chemical union with the toxin. Acquired immunity is due to the over-production of receptors by the cells of the body.

Those which are produced in excess of the requirements of meeting and counteracting the toxines present are thrown off into the circulation and remain ready to combine with any toxin having the same affinity that may thereafter be formed or gain entrance to the body." Antitoxins of diptheria, tetanus, bubonic plague and streptococcus infections are sera which have done the most valuable service.

It is known that antitoxin may disappear from the blood without necessary loss of immunity, and death may occur while the blood is saturated with anti-toxin. It is only a neutralizing agent, not one of regeneration. By it the body is able to resist and counteract infection, and only in this way assist in restoring the body to health.

As stated above, Ehrlick to me is hard to understand, and I wish to quote Behring's definition of his antitoxic theory. "The same substance which, when incorporated in the cells of the living body, is the pre-requisite and condition for an intoxication, becomes the means of cure when it exists in the circulating blood."

Of all the sera, that of diptheria has given the most brilliant record, having reduced the mortality from 40 to 15 per cent. That for tetanus has not given the desired results. That for streptococcal infection acts well in one but not in mixed infections. Those for typhoid and pneumonia are in the experimental stages.

The anti-plague serum has greatly reduced the number of cases and mortality from 33 to 13 per cent. Mixed infections is the great obstacle to overcome, and it has been suggested to determine the mixture and use the sera accordingly.

After selecting this subject I almost despaired of preparing a paper till I saw our program, and there I learned that Dr. Faison was coming with infection, and that I had to prepare an immunity for my fellow co-laborers at this meeting, to counteract, perchance, some fatal toxine infection that the Doctor might bring. So rest assured I'll protect you so far as I can.

Immunity! what a blessing!! In epidemics of small-pox, measles, scarlet fever, diptheria, typhoid fever and others, we appreciate the value of immunity natural or acquired, indivual or racial, and to obtain this inestimable blessing is the end to which we must attain by any or all means—money, time, labor or sacrifice.

So let the profession say to the scientific searchers after remedies conferring immunity upon the human race, labor on at last at our expense till they are found and we will place you in the gallery of immortelles—Jenner, Pasteur, Nuttall, Behring, Raux, Ehrlick, and others. So I would request the author of infections to join with me in conferring immunity, and thus increase longevity and happiness by the conscious security and integrity conferred by this wonderful quality.

I have not undertaken to spread before you the different theories of my subject in detail as promulgated by Metchinkoff, Cheauveau, Ehrlick and others for this good reason: I do not fully understand them, and I refer you to the standard books for explanation and content myself in saying to you that immunity from infections is the greatest thing the body can possess.

(See page 31.)

Use of the Cystoscope.

BY A. J. CROWELL, M.D., CHARLOTTE, N. C.

In presenting this paper on the use of the cystoscope, we claim no new discovery or therapeutic value in the use of the instrument, but wish to emphasize its value in diagnosing pathological conditions of the prostate, bladder, ureters and kidneys. Prior to the invention of the cystoscope we were at a great disadvantage in arriving at a correct diagnosis of many of the diseased conditions of the genito-urinary tract. In experienced hands to-day it gives opportunity for examination and inspection equal to that afforded the rectal specialists by the rectroscope, the laryngoligist by the laryngoscope, or the gynæcologist by the speculum. The instrument was invented and first used by Dr. Max Nitzer, of Berlin, in the year ...., but has not been used extensively until within recent years.

The cystoscope, as you are aware, is an instrument for enabling the eye to observe directly, or by reflected light, the interior of the bladder wall. It is a tubular instrument from 7 to 11 inches long, and varying in size from 18 to 24 French scale, and so constructed as to pass readily into the bladder. There are lenses in the tube to magnify the field of vision, and mirrors are placed so as to make it possible to observe the prostatic area and the whole of the interior bladder wall. A small electric bulb is placed on the end of the instrument to furnish the necessary light, which can easily be removed and another bulb inserted in case it burns out. When required for use the electricity for lighting can be obtained from an ordinary incandescent light after regulating the current with a rheostat. The technique of the examination is simple. The instrument should be thoroughly cleansed with soap and water and sterilized by wiping with pure carbolic acid and then placed for ten or fifteen minutes in a strong carbolized

solution. The instrument should be rinsed with sterile water before insertion. The patient is placed on a table with the head a little elevated, the thighs slightly flexed, and feet resting in chairs beside the table or stirrups for this purpose. This position is comfortable to the patient and very convenient for the operator. Thoroughly cleanse the pubes and genitalia of the patient, irrigate the urethra with a 1-5000 solution of permanganate of potassium, insert a sterile catheter and irrigate the bladder with a saturated solution of boric acid until the water returns clear. (Some of the cystoscopes are so made that the bladder can be irrigated after its insertion.) Then insert half an ounce of a 4 per cent solution of cocaine through the catheter into the bladder and allow to remain for two minutes. Again irrigate and fill the bladder with sterile water. After withdrawing the catheter, fill the anterior urethra with the 4 per cent cocaine solution, and hold for a minute or two and the patient is ready for the insertion of the cystoscope. Always test the light before inserting by making connection with the electric current. The instrument is then lubricated with sterile glycerine and passed into bladder just as an ordinary sound, a procedure which is almost painless.

There are certain indications and contra-indications for the use of this instrument which it would be well to stop here and enumerate. It is indicated in all chronic bladder and prostatic troubles as well as suspected kidney cases. The contra-indications are, as a rule, acute conditions of the genito-urinary tract, such as specific urethritis, epididymitis, cystitis, pyelognephritis, prostatis and seminal vesiculitis. Some writers claim that hypertrophy of the prostate is indicated in every such case, and especially so if you are considering an operative procedure. On looking into the cystoscope, first inspect carefully the mucus membrane, whether smooth and velvety, roughened, thrown into rugae, the condition of the blood vessels, presence or absence of diverticulæ, ulcerations;

and if ulcerations are present observe location and character, whether tubercular, malignant, inflammatory, traumatic, or simple catarrhal in appearance. In all cases of chronic cystitis, which is one of the most common conditions with which we have to deal, you invariably see dilated blood vessels with mucus membrane thickened and thrown into rugae. The causes of chronic cystitis are usually partial retention of urine due to hypertrophy of the prostate, stricture of the urethra, new growths, foresrs, or foreign bodies, and can only be determined positively by the use of the cystoscope. There are, of course, certain other conditions which will produce cystitis, such as obstruction of the visceral circulation, pressure, and cases secondary to acute infections. It is evident that these troubles can not be treated successfully without first finding out the specific cause. Where hemorrhage is not profuse, wounds, contusions, or rupture of the bladder wall can readily be recognized and the extent and severity of the injury determined. Fistulous openings can also be easily located.

Among the new growths, papillomata, polypi, fibroids and carcinomata not uncommonly occur in the bladder. Such growths cause very obscure and often troublesome bladder symptoms, the cause of which can only be determined by the use of the cystoscope. The location and character of the tumors are also found out, and the advisability of removal decided upon. Recently a young man 22 years old came under my care, suffering with partial retention of urine and cystitis. The cause of his trouble had not been diagnosed but the cystoscope at once revealed the presence of several papillomata at the urethral opening, one of which acted as a valve to occlude the outflow of urine. After a suprapubic cystotomy and removal of the growth the symptoms of retention along with the cystitis disappeared. Foreign bodies in the bladder are often sufficient to produce pronounced symptoms, but yet not large enough to be detected by the stone searcher.

In such cases the cystoscope will reveal their presence. Even in cases in which a stone is sounded, we can by seeing its size, determine the operation indicated. Two cases which I recently operated upon illustrate the value of the instrument. In one the stone was seen to be too large to crush, and was removed by suprapubic cystotomy; in the other the stone was not so large and was removed by litholapaxy. Both cases did well and the results were equally satisfactory, but the suprapubic case remained in the hospital three weeks, the other only a few days. In another case we could detect nothing with a stone searcher, but the cystoscope readily revealed a small stone, which was removed by litholapaxy. A subsequent cystoscopic examination showed the stone had been entirely removed.

Former failures of litholapaxy have been due to the want of following the operation by cystoscopic examination to determine if all the fragments have been removed from the bladder. We have seen other foreign bodies removed from the bladder, such as hair-pins and slate-pencils, introduced by masturbating females, recognized by the cystoscope, which were not previously found by other means. The oblique light of the instrument is used for examining the prostate, and is found very beneficial in determining the nature of hypertrophy of the gland. In many cases digital examination will detect but little hypertrophy, when a cystoscopic examination will reveal a pedunculated middle lobe sufficient to produce marked retention. I have lately seen one case of such a character with complete retention. It is always important to first inspect the site for the incision before doing a Bottini operation.

In diagnosing urethral and kidney trouble, the cystoscope is of incalculable value. On inspecting the urethral openings we note their appearance, as to size, dilatation, secretion, inflammation, and whether or not one or both openings are involved. Inflammation or ulceration around one ureteral

opening is strongly suggestive of tuberculosis of the corresponding kidney. Large and dilated ureters usually accompany chronic cystitis with retention. We next observe the secretions, whether or not they are simultaneous, clear or cloudy, the presence or absence of blood or pus. When only a small amount of blood or pus exudes, it can not be detected without the use of the microscope. Simultaneous secretions show the presence of two functionating kidneys, but the functionating power of each can be determined only by catheterization and measurement of the amounts of the secretion. The discharge of blood or pus indicates some diseased condition on the side from which it comes, either in the ureter or the kidney.

Catheterization of the ureters is indicated when we have an acid urine with pus, blood, albumen, tube cast without bladder symptoms and no pathological condition of the bladder as shown by the cystoscope examination; and it is especially indicated if there is inflammation or ulceration about one of the ureteral openings. (An acid urine is found in tuberculosis of the bladder, but the cystoscope will reveal this condition.) For catheterizing the ureters we have two instruments—the direct and oblique. We use the direct. In the hands of a skilled operator the passage of the catheter is usually very easy. The difficulties encountered in catheterizing are diverticulæ, and obstructions from stricture, impacted stone, and pressure from various causes. The benefit derived from this procedure is obtained chiefly from an examination of the secretions collected. The secretion from each catheter is carefully collected for several minutes and the amounts measured and compared. This gives us the relative activity of the two kidneys. In case no urine is passed from one kidney it means that the kidney is not functionating or else that there is an absence of the organ. It has been observed that a testicle is frequently absent along with the absence of a kidney. By estimating the freezing

points of the two specimens we can determine whether or not the proper amount of nitrogen is eliminated by each kidney.

There is a special apparatus devised for this purpose, and is called a cyroscope. On careful examination of both specimens we invaribly find albumen and tube casts from both kidneys in chronic nephritis. Blood and pus indicate pyelonephritis or some inflammatory condition. This is a very important point to decide if an operation is anticipated. If pus comes from one kidney and the other is found to be normal, then an operation is justifiable. If, on the other hand, both kidneys are found diseased, no surgical procedure should be thought of, and especially if the trouble is tubercular in origin. A bacteriological examination of the sediment will often reveal the cause of the trouble, whether tubercular, gonorrhœal, or due to other pyogenic microorganisms.

We have briefly gone over the main uses of the cystoscope and the catheterizing outfit. To go into details would take up more than my allotted time for this paper, but we hope what has been said will stimulate thorough investigation in this important branch of medicine.

(See page 52.)

Epilepsy a Clinical Study.

BY J. THOMAS WRIGHT, M.D., WINSTON-SALEM, N C.

The great antiquity of Epilepsy, described under different appellations, and ascribed to different causes, is too well known to admit of discussion. In its treatment, every remedial measure has been tried, from the charms and incantations of the Ancients, through the maze of empiricism, down to the tentative operative measures of the present day, and all have proven, more or less, unsatisfactory and indicate that there is yet much to learn.

Of the different forms or types of Epilepsy, we are well acquainted, but their etiology is still enveloped in a mist which leaves much to be desired. The more recent authors are beginning to recognize the great importance, as etiological factors, of auto-intoxication, auto-infection and auto-toxæmia, not only in Epilepsy but in a great many of the diseases of the nervous system and mental diseases.

We are beginning to learn that many conditions, formerly recognized and treated as distinct diseases, are merely symptoms of a faulty metabolism or of some remote disease. While within the last few years we have learned much of the nature and functions of the internal secretions and of the nervous mechanism controlling them, we still have a great deal before us to explore, investigate and learn. We are far from knowing all concerning the human body and its workings, and, along some lines, are still groping in the dark endeavoring to catch one ray of the sunlight of truth. Modern methods of clinical diagnosis—both chemical and microscopical, have taught us many new facts and have entirely changed the treatment of a number of diseases, and thrown much light on their etiology; and we have hope that within a few years we will have a more perfect knowledge of the diseases which are now so little understood and be more able to cope with them intelligently and scientifically.

While there may be, and usually is, an hereditary neuropathic tendency, save in traumatic Epilepsy, in the individual, yet, according to Hirt, this does not of itself suffice to make an otherwise healthy individual an Epileptic. There must be Irritation—either *direct, indirect* or *reflex.* Therefore Epilepsy may be looked upon as a periodical explosion of nerve force, due to irritation in some form—mechanical, bacteriological, metabolical, psychical, or otherwise. As an evidence of Epilepsy being produced by direct irritation, I may instance that produced by Alcohol as well as by traumatism of the brain. According to the author above quoted, antipyrin, under certain circumstances, has been known to produce an attack of Epilepsy, while several other drugs have the same faculty. One attack, or seizure, predisposes to another, and the Epileptic habit may be quickly formed in an individual with an unstable, nervous system. Once formed, we all know how rarely it can be removed. It is interesting to note that an Epileptic is usually free from his seizures while suffering with certain other maladies, such as pneumonia or typhoid fever, etc. Why is this? Sometimes Epilepsy may be a remote result of the infectious diseases of childhood, and again shock may be an exciting cause. Workers in lead suffer frequently from Epilepsy. Syphilis is a *causative* factor. As before stated, auto intoxication from ptomaines and leucomaines due to faulty digestion and overeating, with imperfect elimination, should be carefully considered. There is, in an Epileptic, always a hypersensitive brain, or an abnormal excitability of the psychomotor centres, and perhaps imperfect nutrition of the nerve and brain cells. Most authorities agree, I believe, that the subcortial ganglia, as well as the cortex of the brain, are the parts principally concerned in Epilepsy. Numerous and interesting experiments have been made which seemingly confirm this theory, though formerly the medulla and pons were given precedence. The sympathetic nervous system plays a prominent role in this

affection as instanced by the vaso-motor changes, relaxation of the sphincters, the pupil, etc. Neurotomy of the sympathetic, according to Von Jaksch, produced a cessation of the attacks for a long time in several cases. The *cause* of the irritation should be sought out in each individual case, if possible. Upon close study, it will be found that no two cases of Epilepsy are just alike, for each case presents its own individual peculiarities. The auræ are classified as somatic and psychical. The somatic auræ are motor, sensory and vaso-motor. Twitching of the muscles in any part of the body, difficult respiration, palpitation of the heart, etc., are varieties, of motor auræ. Among the censory auræ are ascending numbers in the hands or feet, tingling sensations in the same, odors, etc. In vaso-motor auræ there may be either pallor and coldness of the hands and feet, with general chilliness, or a flushing of the face and body with sweating. There may be, and usually are, combinations of all the somatic auræ. In psychical auræ the patient usually becomes restless, excited and bewildered, though sometimes the opposite condition supervenes and the patient is abnormally quiet. There may be vertigo and headache, wide staring eyes, a look of fear or anxiety, followed shortly by a sharp cry, or a groan, as the patient falls with the convulsion. Hallucinations of any of the five senses may occur just before the attack, thus: sounds of various kinds are sometimes heard by the patient, peculiar or unpleasant tastes are present, or total blindness takes place, and so on.

Whether the auræ be of central or peripheral origin has not been settled definitely, though the preponderance of evidence is in favor of the first named.

Of the classical attack of "Grand Mal" every physician is familiar, and I shall therefore confine myself to mentioning some salient, or special features of it which, in my opinion, are of peculiar importance. These are the increased activity of the salivary glands, the involuntary voiding of the urine,

fæces, and sometimes of the semen, and profuse sweating—all expulsive efforts of Nature—as if she called into play all the excretory organs and glands of the body for a specific purpose. Again, remember the irregularity of the attacks—especially if purgatives are used as eliminants, or sedatives to dull and benumb the nerves.

This seems to me to point directly to some cumulative poison in the system, which may be due to deficient excretory or eliminative organs, or possibly to an erratic metabolism with, perhaps, an over-production of nervous force. It will be remembered that over-eating, restless activity, hypersensitiveness, and onanism are common, and almost constant symptoms of Epilepsy. What relationship the sexual organs bear toward Epilepsy—to what extent the influence is, either pro or con, is not clearly understood, but it is generally conceded that the relationship is close, and there is, in most cases of males, a hypersecretion of testical fluid. That recalls to mind one case which I treated several years ago, more or less unsuccessfully, and which was cured spontaneously upon the patient marrying some time later. This may have been a coincident, but I hardly think so. The effect of the secretion of the ductless glands upon the body and its functions, with the exception of one or two, is, as before mentioned, unknown, and is a fine field for study under the domain of experimental medicine. Sometimes the patient vomits more or less severely after an epileptic seizure, due, no doubt, to hypersecretion of the glands of the stomach, as well as to reflex action due to irritation of the centre of vomiting.

Of the milder form of Epilepsy, or "Petit Mal," of which Charcot was so great a student, I shall not mention, save that because of its different phases, or variations, especially from a psychological aspect, it is very interesting.

The effect of Epilepsy on the patient's mentality depends to a great extent upon the frequency and severity of the attacks, and the length of time the patient has been affected.

Patients attacked in youth or early childhood, suffering most. However, the fact that a person has Epilepsy does not necessarily prevent the development of a brilliant, though perhaps an erratic mind. The oft-quoted cases of Cæsar, Alexander, Napoleon and others, are given as examples. Sometimes though, the unfortunate patient degenerates into a condition bordering on idiocy. The disposition usually suffers much and the patient becomes peevish, suspicious, over-bearing and unsociable. The reason of his moodiness and unsociability is, as a rule, due to the fact that he is branded with the stigma of "Fits"—and perhaps unkind allusions made as to his condition. Also he usually recognizes keenly his almost hopeless condition, and the mere act of living becomes a burden to him. Some very interesting mental symptoms are associated with some cases of Epilepsy, involving the question of double consciousness, and legal, or moral, responsibility, but they cannot be discussed in a paper of this brevity.

Of the treatment of Epilepsy there is not much to be said. It has thus far been almost totally symptomatic, and without appreciable results.

All the drugs familiar to medical men have been used, and a great many materials that are not drugs. The French and German authorities claim good, and sometimes brilliant results, from Hypnotism and Suggestion; but aside from the correcting of bad habits, and its disciplinary or moral effect, I have seen no permanently beneficial results from it, personally, either in my own cases or in those of others. Yet it is a potent remedy in skilled hands and needs further investigation and study. In one case, a young man who had had Epileptic Seizures from infancy, by correcting diet, and as far as possible other vicious habits, and using purgatives and other eliminants, I was able to ward off attacks from three (3) to five (5) months, which had previously occurred from one to three times per week, by the use of oft-repeated hypnotic suggestion. The patient's body should be examined carefully,

including its natural orifices, for any abnormality, or evidence of injury, or for the location of possible foreign bodies. When such conditions, or causes, are found they should be treated, and, if possible, removed. Circumcision, the removal of urethral caruncles, dilation of the sphincter ani, excision of cicatrices, and other operations of a corrective nature prove of vast benefit, when indicated, and often cure. I have in mind the case of a lady in whom a stigmatism, with consequent eye-strain, produced a number of the phenomena of "Petit Mal," and who recovered absolutely without medication upon having the eyes fitted with suitable glasses.

In cases of Jacksonian Epilepsy, of course trephining is the remedy. The stomach tube is often useful in cases complicated wth indigestion and nearly all are, and likewise cleansing and laxative enemas are of great benefit. Nitrogenous foods, and condiments should be avoided and the patient should live on fruits and vegetables as much as possible. Of course alcoholics are interdicted, and coffee or tea should be used but sparingly, if at all. The bowels at all times should be kept freely open and the whole glandular system active.

Creosote, Salol, and Napthol are used with a view of counteracting intestinal sepsis, while trinol, chloretone, hyoscine, valerian, the bromides, acte anilid, and other of the newer synthetic compounds, have been used to quiet the nervous system. Oxide of zinc has also been much lauded by Herpin. Borax has also been used. The bromides, however, are still given the precedence. Personally, I prefer the sodium salt, given alone or in combination with passiflora incarnata and gentian. Hirt strongly recommends the administration of belladonna with the bromides to increase their efficiency. Exercise in the form of gymnastics, or some manual labor, should be insisted upon and excess of any kind prohibited. "Be temperate in all things" applies especially to the Epileptic. I shall append a report of two cases which I have not previously mentioned in this paper.

Case I—Young married man aged twenty (20), printer by trade, given to alcoholic excesses, had Epilepsy for three (3) years. General condition fair with the exception of marked nervousness. First attack came on during a severe intoxication and had persisted in returning at irregular intervals. Convulsions quite severe and always left patient much exhausted for several days. Upon examination, found right kidney sensitive, irritable stomach, loss of appetite and quite a nervous heart. There was polyuria, and the specific gravity of the urine was low. Diagnosed Epilepsy, due to alcoholism. Treatment consisted in the removal of the cause—the whiskey, tonics, purgatives, Bromide of Soda, with valerian and passiflora incarnata, and directions as to habits and diet, with baths. I also used suggestion, more or less, throughout the treatment. The attacks returned at longer and longer intervals, until they ceased altogether, at least they had not returned for over a year, when I last saw him.

Case Two.—This was a gentleman of color, who said he had "fits" for five or six years. He had some eruption on the skin, indigestion, foul tongue, constipation, dilated pupils, loss of muscular force, and mind much confused. Gave a history of syphilis which had been imperfectly treated. The seizures occurred on an average three times per week, and at times he would have entire lapse of memory for days at a time. Under specific treatment, coupled with purgatives, the bromides, tonics, and restricted diet, this patient also made a good recovery after several months.

In the only case of Status Epilepticus which I ever saw, the young woman had thirty (30) convulsions in twenty-eight (28) hours, when death supervened. Notwithstanding inhalations of chloroform, opiates, and other active treatment, the convulsions continued to the end.

Some Observations on Malaria with Special Reference to the Disease as Complicating Enteric Fever.

BY A. S. PENDLETON, M.D., HENDERSON, N. C.

The conclusions arrived at and set forth in this paper are the result of a careful revision and study of 943 cases of malaria of which complete notes were taken and of conversation with medical men living in malarial districts who have had a large experience with the disease.

Of the cases 12 were of the malignant type, with hemorrhages and subsequent jaundice, 97 æstivo autumnal remittent, 79 quotidian intermittent and the remainder tertian intermittent. The apparent proportion would be misleading did I not add that, as no record was kept of a great many cases of the tertian variety treated during the same period they are not included.

In the malignant cases the blood was found filled with molecular debris and disintegrating red-blood cells and contained numerous small organisms identical in appearance with those seen in the beginning of the æstivo-autumnal type of the disease. The plasma was apparently slightly stained with hæmoglobin. From the course taken by these cases, and, according to the experience of men who have treated many similar ones, the danger in malignant malaria is particularly never due to the loss of blood through hemorrhage, but to the toxines in the circulation causing an acute nephritis—death resulting from ureamia. The fact that the physicians who obtain the best results in its treatment are those who pay most attention to the kidneys will strengthen the position here taken.

It is very unusual for the hemorrhage to threaten life. Almost invariably the amount of blood lost seems to bear no relation to the gravity of the attack. In one of the cases cited the hemorrhages were very profuse and continued throughout

forty-eight hours, yet the patient recovered, though at times no radical pulse could be detected.

In another, the hemorrhages were limited to two and were both slight; yet on the third day there was complete suppression, the patient dying on the eight from uramia, though all known means, including hypodermoclysis, were tried to get the kidneys to act.

The use of the deci-normal salt solution by transfusion, hypodermoclysis, or enteroclysis has undoubtedly materially lowered the mortality, and should be used in every case, regardless of the amount of hemorrhage; its beneficient action being derived much more largely from its direct diuretic effect and from diluting the toxines in the circulation and so preventing nephritis than from replacing blood lost. Nausea with frequent wretching and vomiting is almost always present during the first twenty-four hours, and it is a waste of time and energy to give anything by the mouth except calomel, champagne, a little water or cracked ice. A hypodermic of morphine is usually necessary for pain and nausea.

Quinine should be administered hypodermically and, as twenty to thirty grains per diem have been proven sufficient to destroy the organisms, the dose should be limited to that amount. The reasons the immense doses of the drug which have been given have done no harm or have apparently done good is because only a very small proportion was given hypodermically and that given per orem was either vomited or swept through the alimentary tract by the accompanying calomel before there was time for absorption. Dieuretics per orem should be begun as soon as possible.

Nothing of interest was noticed in connection with the Tertian and æstivo-autumnal types except that the salicylate of quinine was better borne by the stomach than any other salt, that it controlled the headache and backache usually without the need for coal tar products or morphine, and that a smaller dose of it was required, than of the sulphate, to de-

stroy the parasites. Fifteen to twenty grains per diem generally being sufficient. As to the etiology of the disease, we are all agreed that it is caused by the presence in the blood of the malarial parasite, variously known as hæmosporidia of malarial, plasmodium malaria, etc., which have been very fully described by many of the authorities, but especially by Thayer, of Baltimore. Manson holds to the belief that the only course of infection is through the bite of the anopheles mosquito and his experiments would lead us to believe that his conclusion is the correct one, but we of the South, and especially those of us who live in the eastern section of North Carolina, have learned through experience that certain conditions certainly predispose to the extent of determining individual attacks whether or not they are responsible for the infection. For instance, those who habitually drink impure water are peculiarly liable to the disease while those who are careful to take nothing but pure water are notoriously free from attacks. The substitution of deep drilled wells for shallow open ones has greatly lessened malaria in certain districts. Those who are exposed to the heat of the noon-day sun are more often attacked than those who are not. In intensely malarial districts a paroxysm will often make its appearance after surgical operation or after labor, and one too that is shown to be malarial and not septic in origin by examination of the blood and the administration of quinine. These facts indicate the possibility of other sources of infection. On the other hand the writer has found the organisms in the blood though there were no symptoms indicating their presence and the conditions just enumerated may act by simply lowering the vitality and resistive power of the individual to the extent of causing an attack when otherwise the parasites would have been destroyed without producing symptoms. That exposure to night air predisposes is explained by the fact that the anopheles is essentially a night hawk.

The number of cases is always increased in localities where excavations are being made, where the ditching and draining

of swampy lands is being done, but there is less than usual during the summer following such drainage. Malaria is more prevalent in dry than in wet summers, this may be because stagnant water is required for the growth and development of the larvæ of the anopheles and oft repeated rains destroy them.

Let us now consider malaria as a complication of typhoid. All authorities I believe admit the possibility of such a mixed infection, but declare it to be a very rare condition.

In the summer and fall of 1899 the writer treated twenty-seven cases which presented the following evidence of being caused by a mixed infection.

1. The plasmodium in one or another of its forms was present in the blood of all, so there was no doubt about the malaria.
2. Widal test position in all.
3. The Diazo-Reaction was present in all.
4. Expistaxis in seventeen.
5. Rose rash in twenty-one.
6. Intestinal hemorrhage in five.
7. Perforation of bowel with death followed by post mortem in one.

As you will see, I have taken only those cases in which the proof was practically indisputable and when I add that the total number of typhoid cases, including these, treated during this time was 39, you will perhaps begin to believe with me that in malarial sections the mixed infection is much more common than we have been taught to believe.

In these cases during the first few days of the attack the malarial symptoms were of such prominence as to mask those of the Enteric; but after the first week, when sufficient quinine had been given, the clinical course was typically typhoid in character.

The usual history was as follows:

No prodromes, the disease being ushered in with a chill accompanied by headache, backache, and a maximum tem-

perature of from 104 degrees to 105 degrees F. sometimes reaching 106 degrees F. The bowels generally constipated and the tongue pale, flabby, and heavily coated.

The urine usually showed a trace of albumin and in some cases particularly those in which the temperature was excessively high, an occasional blood cast was found. Examination of the blood on the afternoon of the second day revealed numerous malarial parasites.

From three to six hours after the chill the fever would begin to subside and the patient to sweat profusely. The temperature would almost or quite reach the normal by the morning of the second day and rise again to about 100½ degrees F. in the evening.

In about fifty per cent of cases observed there was a second chill with fever and sweat on the third day, regardless of the treatment instituted, but when fifteen to twenty grains of quinine were administered daily the third paroxysm never appeared. Discontinuing the quinine invariably means a recurrence of the chill and usually on the eighth day. Fifteen to twenty grains was found to be sufficient to control the malarial element and seemed to have no deleterious effect on the typhoid

The course of the disease after the third or fourth day was generally typically typhoid when the quinine was continuously administered.

In five cases there were one or more hemorrhages, and in one perforation followed by death of the patient. Another was complicated by brocho-pneumonia in the third week and the patient succumbed on the twenty-sixth day, making two deaths and twenty-five recoveries. It would seem therefore, that the mortality is no greater than in uncomplicated typhoid.

The reappearance of the malaria when the quinine was discontinued was probably due to reinfection as these patients were not protected.

The purpose of reading this paper is to get those of you who have had a large experience with malaria to express your opinions without reserve rather than with the idea of presenting anything new.

TO RECAPITULATE.

1. The use of the decinormal salt solution is indicated in every case of malignant malarial, regardless of the amount of hemorrhage for its diuretic action and to dilute the poison in the blood. Not more than 20 to 30 grains of quinine per diem should be given and that hypodermically. No drug save calomel should be administered per orem during the first 24 hours.

2. The salicylate of quinine is the salt of election when the drug is to be used by the mouth. It being less irritating to the stomach, causing less tinnitus and a smaller amount being required to destroy the parasites.

3. Have we discovered in the anopheles mosquitoe the only source of infection?

4. It would seem that in malarial districts enteric fever is more often complicated by malaria than we have been taught to believe, though this mixed infection does not apparently increase the death rate provided the malaria is taken into consideration and treated.

The Diagnosis and Treatment of Some Fractures Often Seen in Private Practice.

BY F. H. RUSSELL, M.D , WILMINGTON, N. C.

To the general practitioner fractures come under the head of imperative surgery; the careful diagnosis and treatment is of the utmost importance, without which the patient will probably have a deformed limb, partial loss of function, pain and ill will towards his physician which may make itself manifest in the form of a damage suit. In all fractures it is well to give a guarded prognosis, explaining the possibility of some deformity or shortening on the ground that it is impossible to tell how severely the bone is injured. Fractures are one of the most frequent injuries we are called upon to treat, if not the most frequent. They have been known to occur in the infant in utero, from a bullet or sharp instrument which has perforated the mother's abdomen or violent blows on abdomen.

It occasionally happens that a limb is fractured during delivery, from rough manipulation or instrumental delivery and so on through all stages of life; the climbing boy and Tom Boy until we come to the fragile and easily fractured bones of old age, which furnish the largest number of fractures.

We are all familiar with the usual symptoms of fractures, but like many other troubles in medicine and surgery the case we are called upon to treat is not like the one in the book which seems so plain—in fact often nearly all of the symptoms are absent.

1st. The deformity may be so slight, that only very careful palpation and comparison with the normal side and movements will detect it.

2nd. Measurement is not always certain. Strinson lays special stress on the normal asymmetry of the body which is

sometimes very noticeable, as much as an inch and a half in the lower limbs, swelling of the soft parts which also occurs in sprains and bruises is another source of difficulty.

3rd. Our usual sign of abnormal mobility is not always present and recognizable for the fracture may be incomplete or near a joint or one fragment may be too small to be grasped—the elasticity of certain bones as the ribs and fibula may mislead you.

4th. *Crepetus.*—This important sign cannot always be produced, if the fragments are completely separated or if a piece of fascia or muscle is between them or if they have become covered with granulations. It is a noticeable fact that the manipulation which produces it one moment does not cause it next.

5th. Loss of function is only a suggestive symptom—as any severe pain in foot will cause it—again patients are occasionally seen who can move a fractured limb or even walk with a broken ankle or leg.

6th. Pain is not a positive sign, as it may be present from as many other causes. Strinson says its absence is often a positive means of excluding fractures.

7th. *History.*—This is often difficult to get satisfactorily as often only the injured knows of it—determine if there has been previous injuries which might deform the part, nature of accident, force caused it, position patient was in at time, etc.

The diagnosis of fracture is not always a simple matter, often in children, sometimes in grown people fright and pain with excessive muscular rigidity will prevent a thorough examination and general anæsthenia should be used. In my opinion this valuable aid to diagnosis is not used often enough. Too often the fracture is done up with a slight examination. Under chloroform a careful examination can be made and great benefit derived from the study of the case and many times we will find what we did not even suspect.

In many cases the doctor does not arrive in several hours after the accident, as cases in the country where the doctor does not worry about the other man getting his case, then the pain and swelling is at its height and the diagnosis is difficult.

In every case where there is the slightest doubt use chloroform, having the dressings ready to apply as soon as the examination is made.

As a rule fractures unite readily, the younger the child the better. In adults and old people about the same length of time is required, but after the fracture unites the patient is not always well, the soft parts have suffered from the disuse of the limb and from retarded circulation caused by the dressings, the skin is sensitive and dry, the limb swells, the joints are stiff. Massage with some oil or cocoa butter, hot water poured over part often, and working the part under hot water usually restores things to normal in a few weeks.

Fracture of Clavicle.—This is a very frequent injury in children, in adults the same force causes dislocation of the shoulder joint. The outer portion of middle one-third is usual seat and simple complete fracture the usual form, although incomplete fracture often occurs.

We are often called to a child who has had a fall on shoulder. Examination reveals only a bruise with swelling and pain, the clavicle seems to be all right, but later a lump of callous can be felt under clavicle, showing the real nature of the injury.

Fractures of the middle one-third are easily recognized as the usual signs are easily made out. Outer and inner thirds not so easily diagnosed, deformity is less, crepitus hard to produce pain on pressure when the shoulder is pressed in, partial fracture or fracture without displacement, it may be about the only sign present—slight displacement and shortening usually results.

In complete fracture the weight of the shoulder causes displacement of the fragments. The principal point in treat-

ment is to put the shoulder in proper position and keep it there; many different dressings are used, every man has his favorite. Sayres adhesive plaster dressing seems to hold the parts in position and gives good results. A very good dressing is a pad over clavicle held by plaster, a sling for arm and plaster over shoulder and across back to hold shoulder in good position.

Rarely a patient will want to prevent all deformity, usually a young lady, and she may be treated by lying in bed for three weeks with a firm pad under shoulders, arm held across body, or by digital pressure on fragments.

Colles Fracture.—Fracture near the wrist joints looks very much like a dislocation backward for which it was taken by our forefathers. By many this is considered the most frequent fracture. The ordinary symptoms of crepitus and mobility are often absent and the diagnosis is difficult. It often has to be made upon the following signs: Tenderness on pressure, deepening of the transverse folds on front of wrist, deformity and loss of function of hand.

In this fracture we should give chloroform if reduction is not easy, unless perfectly reduced deformity results, the hand should be moved backward and forward to loosen the fragments, then pressed in place, after once it is reduced it usually stays. Many splints have been devised for this fracture, but the best is the old Ant. and Post. wood splint anterior coming to meta corpo, phalangeal joint, post to carpo, meta corpal joint, with something in hand to support it, and elevate a little, the splints are firmly bound on. Plaster of Paris also makes a good splint. A wide strip of adhesive plaster drawn tight around the fracture has been used.

In elderly people motion is restricted at the wrist joint, the fingers are stiff and pain on motion persists for months due to injury of soft parts and inflammation of sheath of tendone.

Fracture of lower end of humerus named according to seat of fracture, ext. or Int. condyle, inter condy loid and articular process.

Occurs frequently in children, parts swell rapidly here, and it is important to make diagnosis as early as possible as the function of the elbow joint is easily interfered with by a displaced fragment or too much callous.

As to the signs, pains on pressure, the location of the pain being valuable evidence as to the position of fracture, the other symptoms are usually present. Dislocation of the elbow often resembles fracture of lower end of humerous, by careful manipulation we can feel the head of the radius in place and the olecranon process bearing its proper relation to end of humerus.

The positive sign of fracture of either condyle is its independent mobility noticed by grasping it and moving backward and forward, in inter condyloid pain is present when the two condyles are pressed together.

Treatment.—The arm should be put up with the elbow at a right angle, anterior and posterior moulded splints from any splint material. Plaster of Paris is a good dressing. The fore-arm should be supported in a sling from the wrist:

Fractures of upper end in most cases we find the usual symptoms of fractures in some cases with great swelling, pain on pressing the fragments together may be the only symptoms on which to make a diagnosis.

Dislocation of shoulder is excluded by recognition of head in its proper place.

Fracture of Ribs.—This is of frequent occurrence, may be partial or complete, includes one or several ribs, from the 5th to the 9th are the ribs most frequently broken; the floating ribs are never fractured. If only one rib is broken, little displacement will result.

Symptoms are pain on pressure—or deep inspiration and coughing, crepitus often heard by placing ear against chest—bloody expectoration frequent—the presence of eruphysenia with absence of external wound is said to be pathognomomic.

Treatment.—Partial immobilization of chest by wide strip

of adhesive plaster placed around one-half of chest during expiration.

I wish to call special attention to the treatment of certain fractures of the lower extremity with the old Nathan R. Smith anterior splint. In fractures of the neck of the femur —whether they be intra or extra capsular, in all fractures of the shaft-fractures of the neck are usually found in the aged —the tissues being lowered in vitality they stand the long confinement poorly, the usual apparatus requires the patient to stay practically in one position for several weeks, the general health suffers so from this, that the fracture is often unable to unite. The apparatus consists of a post 6 feet high at the head of the bed, one at the foot, securely fastened to the floor with a connecting piece above; pulleys are fastened in top piece to elevate and lower the limb, in the post at foot to make extension. The wire frame to cover anterior portion of limb from hip to foot, this is snugly bandaged to limb and when elevated by means of pulleys above, the pressure of splint is taken off and makes practically a soft comfortable sling for limb. The patient can sit up in bed—use the bed pan with ease, the back can be spounged—bed sores prevented, the limb can be lowered and raised, helping the circulation and adding greatly to the comfort of patient.

Report of Case.—Mrs. S., aged 70, was coming out of church on Sunday evening, last July, slipped and fell down two steps, had to be carried home. On examination found her unable to move limb, foot everted, limb lying helpless on bed, pain in hip on pressure, limb shorter; diagnosis, fracture of neck of femur. The limb was put up in R. R. Smith's anterior splint. By means of a strap fastened to the piece above the bed, patient was able to pull up, change her position in bed, etc., she stood the confinement well, notwithstanding the intense heat, at the end of 7 weeks dressing was removed and massage given for two weeks; after this, she was able to go around with the aid of a stick and had a fairly useful limb.

Case II.—Mrs. G., white, age 62, had a large door to fall on right thigh, fracturing the shaft in two places; an anæsthetic was given, fracture reduced, a perforated zinc split placed around limb, and Smith's anterior split put over this; patient stood the confinement well, in 6 weeks union was good, with very little shortening.

I have used it in five other cases, always with comfort and good results to patient.

(See page 54.)

The Care of the Tuberculous and the Importance of Intelligent Legislation and Education as Factors in the Prevention and Cure of Tuberculosis.

BY THOS. P. CHEESBOROUGH, M.D., ASHEVILLE, N. C.

I shall write just about the early diagnosis and certain signs which, when first observed, should make us suspect tuberculosis, for all of us recognize the great importance of an early diagnosis in consumption. Latham, in his most excellent book, "Diagnosis and Modern Treatment of Pulmonary Consumption," says that we must make a positive diagnosis of this trouble.

First. When Tubercle Bacilli are found in the sputum and there is no source found for them in the mouth and upper respiratory passages.

Second. When Hæmoptysis—even to a very small extent—is seen associated with suspicious physical signs and when we are sure that the bleeding does not come from upper air passages.

Third. When we find diminished resonance and increased resistance to the finger in percursion, associated with the presence of persistent crepitation and rales in those situations where tuberculosis usually starts. If these signs above mentioned are carefully loked for by all general practitioners we would expect cures in nearly all cases of tuberculosis. But they are not. Like all physicians living in a country celebrated for its climatic advantages, it has been my lot to come in contact with a vast number of these unfortunates, and nearly all of them have passed the so-called first stages of the disease. In fact nearly all the tuberculous who come to Asheville have delayed so long in coming, either from lack of diagnostic ability on the part of their home physician or his unwillingness to tell them of their serious trouble (or to lose a patient) that it does not require an expert to diagnose tuber-

culosis. An intelligent cab driver or car conductor can do it, and it is with this class of consumptives that we chiefly have to deal, and of whom I am wrting.

One of the greatest disadvantages that I have found in treating this disease is that the poor unfortunate, when at last his disease has been diagnosed, and he has been sent from home and its comforts, has been advised by the home physician not to consult any one here, but to exercise and drink whiskey and to come home in a few months cured. These things he does until finally, after having wasted much time and having steadily grown worse, he consults us and we find that he is running a high temperature and has a disordered digestion and all the evils that accompany them. We have first to convince him that he has been pursuing the wrong course, that rest—absolute rest—is of the greatest importance and *fresh air* all the time, night and day. From his infancy he has been taught to fear God's beautiful fresh air, that never yet has done any one harm, taught to shut it out from his house to live in close, stuffy, over-heated rooms. When at last we have persuaded him to sleep out and to live out in the open air, he begins to get better, but still coughs and raises. They want this stopped, and if you are not careful you will find that they are taking some cough remedy that they brought with them, a cough medicine full of some sedative that ties up the secretion and prevents drainage, and drainage is what they want. Drainage to clean out the accumulated mucus, pus and bacilli, and if we do not get drainage we will soon have chills, fever and sweats, and with these our patients grow steadily worse. I find it very difficult, but very important, to teach them that they must cough in order to get rid of the vast amount of mucus, pus, etc., that is always secreted when mucous membranes are inflamed. And night sweats, too, are in my mind, just another manifestation of Nature's efforts to rid the system of poisonous and deleterious products. I do not give drugs to stop night sweats, but

try to remove the causes. These are simple little points that years of experience have taught me to respect.

Next to rest in the open air comes nourishment. Do not stuff and overfeed, but make your patient eat all the good, nourishing food that they can possibly digest and assimilate, and all persons suffering with consumption (a good name for them is a consuming going on all the time) require much more food than those who enjoy health.

Instead of cough medicine I find that by carefully clearing the upper air passages by means of antiseptic and alkaline washes in sprays, and deep inhalations of some of the soothing, oily substances in sprays and depurators. That we soon make them raise easily, and by thus getting rid of the offending matter, there will be no necessity for much coughing. The so-called useless cough usually comes from an inflamed larynx and this must be treated accordingly. After the patient has ceased to run a temperature and has regained his lost weight, or, in other words, the active tubercular process has become arrested, then we should allow him to exercise, or, in other words, to live a healthful, normal life.

In regard to legislation as a means of prevention and cure, I realize that it will take time to accomplish much, but good can be accomplished at once. While the refined, wealthy and educated consumptive expectorates his 500,000,000 tubercle bacilli per day, the same as his poor, unfortunate brother, who has not a change of linen, the former—if he be refined and educated—has learned how to destroy his sputum so that he almost ceases to be a source of reinfection for himself and infection for others. The latter does not know and expectorates any and everywhere.

First. There should be strict legislation in regard to expectoration.

Second. All large corporations employing large numbers of laborers should be compelled to have their employees examined whenever there is the slightest signs of pulmonary

trouble, and when the disease is present, either the corporation, town, State or United States Government should remove that patient to a suitable place and support him or her until cured. Every hotel and boarding house in our State should be compelled to have certificates from a competent health officer that all of its rooms in his house have been thoroughly disinfected after being occupied by any ill person.

North Carolina should not allow a sleeping car to pass through her borders without such a certificate; and right here I wish to say that the sleeping cars are a very prolific source of spreading all kinds of infection. I have seen the poor, dying consumptive, even when accompanied by a physician and trained nurse, expectorate on those horrible colored blankets that most of the sleeping cars use, and on the edges of the berths. What is the result of this? At the end of the journey the patient leaves the car and the sputum that has dried on the blankets and berths is left there for the next occupant to inhale.

All public and private schools should be carefully watched over by the health officer and the children taught how to take care of themselves, and not to expectorate promiscously.

The officers who should be the sanitary guardians must be men chosen for their ability and not merely from political influence.

To sum up: Let us teach our children at home and in schools how to live. Let it be compulsory for every one of them to show certificates of good health, just as they now have of vaccination.

Let all employees of large corporations be examined and cared for by their employees, town, State or United States Government, when suffering with tuberculosis, thereby insuring an early diagnosis and cure.

Let all sleeping cars be thoroughly disinfected at the end of each journey.

Let every public building, hotel, boarding house, factory

or office, etc., show certificate of disinfection as often as the health officer thinks best.

Let it be a crime to expectorate where the sputum may become a menace to good health.

Let these few simple rules be carried out and in a few years we will accomplish more in the way of curing and preventing the "Great White Plague" than has ever yet been accomplished by all the serums, toxin, antitoxin and drugs in the pharmacopœia.

Thyroid as Pertaining to the Subject of Practice of Medicine.

BY W. K. LANE, M.D., GOLDSBORO, N. C.

For many years the thyroid gland has commanded the attention of the medical profession. For many years the important part that the thyroid gland plays in the maintenance of health of the body has been, in some respects, a conjecture. According to some the thyroid secretes a substance which influences the nutrition of the nervous system.

Many interesting facts have developed from the researches that have been made. For instance, cretinson, which up to the last few years was looked upon as only a low form of idiocy, is now know to be due to the maldevelopment, atrophy or absence of the thyroid gland. Adiposus dolorosa, or known as dercums disease, is yet under dispute as to the pathology, some of the best authorities still clinging to the idea that it is due to a pathological condition of the thyroid, but by others to be due to a pathological condition of the pituitary body.

In the spring of 1902 I had the opportunity of seeing the thyroid gland, as well as the pituitary body, taken from a case who had suffered with this condition, the thyroid gland being diseased, but the pituitary body was more involved.

This and other cases have given rise to the belief that the envolvement of the pituitary body is responsible for this condition, but as yet it is only a conjecture. As in most of the cases (which have been few) the thyroid was involved in one way or another. Myxodema, a progressive disease, manifested by the infiltration of a gelatanous substance into the sub-dermal tissue a decline of health and mental failure. There is not only a change in the connective tissue, but in the entire body.

The disease develops slowly, and as it progresses the face,

neck and other parts have a bloated appearance, the nose widened and flattened, thick lips and tongue giving a dull appearance, hair poorly nourished and scanty, the hands and feet enlarged; skin thick, coarse and yellowish white which does not pit on pressure; eyebrows and lashes fall out and baldness may occur. Of the nervous manifestations it is inclined towards dementia, there at times appearing hallucinations of sights and hearing and some grow irritable and suspicious. There is slowness of movement and thought. More women are affected than men; some say in the ratio of 10 to1, others 6 to 1. It may attack families and is transmissable through the mother. It is a disease of middle life.

The cause of the above is atrophy of the thyroid. The exact factors influential in establishing the condition are poorly understood, but by some it is thought to be an inflammatory and productive process inducing sclerosis, like that seen in other secretive organs. It is not impossible that in some cases the thyroiditis is secondary to acute infectious fevers may progress into a sclerotic condition and thus cause the disease.

Cachexia striumpriva is the condition caused by extirpation of the thyroid and give rise to the same manifestations as of myxodema. The cause of myxodema may extend over a period of ten or fifteen years. The symptoms vary as to extent of involvement of the thyroid.

Up until the last ten or twelve years cretinson was looked upon and applied in a general sense to idiocy or defective mental development, depending upon local causes associated with deformity or arrested growth, and looked upon as a result of local conditions and caused by reception of an undue amount of calarious matter into the system.

This has been proved a fallacy and the cause is due to atrophy or loss of function of the thyroid gland in sporadic cases and to the absence in true form of cretinson. It is a condition rarely recognized before the sixth or seventh month,

when it is noticed that the child does not develop as it should and mentally is not bright. Tongue and mouth large, skin oily and coarse and hair dry and scant, and so develops until about the second year, when the symptom of cretinson are marked.

In other cases, or those termed sporadic, the child may normally develop until the fourth, fifth or sixth years, or later, the symptoms beginning with fever, followed by atrophy of the thyroid, characterized by mental decline and physical retardation and stunted growth, rarely reaching the height of five feet. Deformity occurs with limbs crooked, chest flattened, long bodied and lumbar lardosis, giving rise to appearance of protruding abdomen, hand flat and spade-like, nose large and flattened and eyelids swollen, dribbling of saliva, skin dirty yellowish white and coarse and dry, puberty delayed sometimes to twenty-five years, when menstruation is scanty and soon ceases, special senses poorly developed and temperature subnormal. Attacks occur in which they will set almost helpless for hours; as Maffers says, "as if the soul had entirely left the body." All movements and actions, mental and physical, are slow. There are all grades of cretinson, from those that can be taught simple duties down to complete idiocy.

Treatment of these conditions are those of thyroid extract, nutritious foods, general tonics and hygienic measures. Under this treatment many, in fact almost all, have improved and some cured, whereas without treatment, they remain in this pitiable condition.

Bedside Diagnosis of Typhoid Fever, with Special Reference to the Early Recognition of the Disease.

BY CHAS Z. CANDLER, M.D., DILLSBORO, N. C.

Typical typhoid fever manifests it self by such evident and characteristic symptoms that to speak of its differential diagnosis would seem almost superflous. However, mistakes are often made, but these are, as a rule, during the early days of the disease, before the cardinal symptoms, as it were, make their appearance. It is the early recognition and the diagnosis of atypical cases that baffle not only the young and inexperienced, but the old and experienced physician as well.

Delayed treatment affects in itself the life of one person, while the delayed recognition of the disease may affect many lives. This fact is manifested more particularly in private than in hospital practice. We know also that the earlier in a case we begin our treatment the better the patient's chances for recovery. Therefore, the early recognition of the disease is of the utmost importance from the point of view of treatment. However, there is another important reason for endeavoring to ascertain as early as possible as to whether a patient is suffering from an attack of typhoid fever; and that is as long as the malady is not identified there will be no steps taken towards the prevention of the spread of the disease to others. Think of the trouble that may arise from the so-called ambulant case, before his condition be diagnosed, if, indeed, it ever be diagnosed.

What, then, are the clinical symptoms of a case of typhoid fever in its early stage? It appears to me that the most important symptom is that of the temperaure. Now, the height to which the temperature rises is in itself not diagnostic, it may be 99 degrees or it may be 104 or 105 degrees. A person may go for days without any apparent discomfort, except

perhaps loss of appetite, more or less headache, indisposition to any kind of mental work, with, in some cases, a slight diarrhœa, and yet have a more or less elevated temperature. I have in mind now the case of a young man (a barber) who consulted me for general malaise which had existed for several days, together with headache, bad dreams at night and loss of appetite. In spite of this condition he had kept up his work in the "shop." His temperature was found to be 103.6° Fahr. He was promptly put to bed and went through a typical attack of typhoid fever. I have no doubt that had his temperature been taken a week prior to my first seeing him it would have been found above the normal. We are frequently consulted about just such cases. A man comes in with a pale face, a tired, drawn expression, lack-luster eye, the pulse slightly accelerated, the tongue coated with a dirty white or yellowish fur, more pronounced in the center than at the sides. The red edges spoken of in the text-books will not be seen at this stage. The skin may seem dry and hot, but this symptom depends upon the condition of the observer's hand.

Given a case with a sustained temperature and that peculiar facial expression—*and I would specially impress that facial expression*—together with other more or less obscure symptoms, would point strongly to typhoid.

We are compelled then to diagnose, clinically, by a system of exclusion. To some extent geographical limitations of the disease aid us in the diagnosis. There are, however, sections in which almost all disease are mistaken for typhoid fever, and vice versa. Before going into a discussion of the specific diseases, let us take up the temperature and a few other special symptoms that seem to characterize typhoid.

The typical temperature of the text-books is characterized by a series of regular step-like elevations, a remission of a degree or so in the morning, and an ascent of from one to two degrees in the evening, to reach the maximum about the

fourth day. I am of the opinion that a large number of cases do not present this typical temperature chart, and that sometimes a temperature typical of typhoid fever may occur in other fevers. It has not been very long since physicians of eminence did not hesitate to be very emphatic in regard to the value of temperature as a diagnostic sign in typhoid fever. Sir William Aiken, in his "Practice of Medicine," said: "A temperature of 104° Fahr. on the second day is not typhoid fever, a temperature which is not above 102.5° after the evening of the fourth day is not typhoid fever, and lastly, a patient after the first day whose temperature has been found normal once during the first week is not a case of typhoid fever." This was written twenty years ago. I do not believe that one of these definite statements has ever been justified. Temperature, then, of itself, is not a guide to the diagnosis of typhoid fever, although a typical chart is strong presumptive evidence of the disease. In fact, any condition with a continuous fever, ascending or irregular, for four or five days, is suspicious if no other symptoms of other diseases are to be made out.

Diarrhœa.—This symptom was at one time looked upon as a cardinal symptom of typhoid fever. Now, it is by no means so common. On the other hand, it is rather the exception than the rule. The disease probably affects the intestines in one of two ways. It either causes undue irritability or it paralyzes. In one condition we have diarrhœa, while in the other we have constipation.

Iliac Tenderness and Gurgling.—The iliac sign is a very unreliable one, as it may manifest itself in various other diseases. There is tenderness in some cases, though this will generally be found to be of a very indefinite nature. In some cases it is entirely absent, while in others it may be well marked. Gurgling in the right iliac fossa is present when there is much diarrhœa. However, this sign can be elicited

in nearly as large proportion of cases that are not typhoid. In fact, it can frequently be found in a state of health.

Spleen.—The spleen presents no abnormal symptoms in the early stages of the disease, though later on, during the second week, it becomes markedly enlarged.

Epistaxis.—Nose bleed frequently occurs, though in my experience it has been absent in about as many cases as it was present.

Eruption.—The eruption of typhoid fever makes its appearance generally during the second week, on the abdomen, as a rule, though it has occurred on other parts of the body. It consists of rose colored spots which vary in size and shape, and are characterized by disappearing on pressure to reappear when the pressure is removed. The existence of this eruption is diagnostic of typhoid, though its absence is not proof that the disease does not exist.

Tuberculosis.—As a systematic invasion, apart from pneumonia, may be mistaken for typhoid. Especially is this true among the negro population. In both affections there is a prodromal stage with anorexia, progressively increasing fever, cough and bronchitis, headache and delirium. The temperature curve in tuberculosis is very irregular, eruption is absent, epistaxis is not common, and enlargement of the spleen is less constant than in typhoid fever. It is claimed that the knee jerk is never absent in typhoid, while in tuberculosis it is variable—being present one day and absent the next. The diazo reaction of the urine, once supposed to be diagnostic of typhoid fever, may also be present in tuberculosis. Clinically, the disease is difficult to distinguish from typhoid with irregular temperature. The face will, as a rule, be flushed, in contrast to the pale drawn expression of typhoid. The tongue is more likely to be coated with a whitish fur, while in typhoid the tongue will be found covered with a brownish fur about the center, the red edges appearing as the disease progresses. By waiting a few days the diagnosis can be made,

clinically, by the appearance of more marked typhoid symptoms.

Primary labor pneumonia is occasionally, though not commonly, mistaken for typhoid fever, as the sudden onset with a distinct chill, marked pulmonary symptoms, presence of herpes libilis, and the occurrence of the crisis from the fifth to the twelfth day, serve to distinguish the disease from typhoid.

Capillary or broncho-pneumonia is liable to be mistaken for typhoid, inasmuch as a capillary bronchitis is common in typhoid. But when due to the latter disease it is, as a rule, not met with before the latter part of the second week.

Influenza.—In my own experience I have known influenza to be diagnosed typhoic in two instances. In some cases it may exhibit great prostration with early bronchitis and epistaxis, combined with sleeplessness, fever, and perhaps delirium. Generally the sudden onset, frontal headache, pain in eyeballs, rheumatoid, pains and sthenic fever, and the sudden disappearance of these urgent symptoms, together with absence of rose spots and enlarged spleen, serve to distinguish the disease. But typhoid fever may begin with pain in the eye-balls, more or less catarrh of the conjunctival mucous membrane together with other more or less atypical symptoms. Under these circumstances the best course to pursue is to wait.

Simple Continued Fever.—Pepper, in his "Theory and Practice of Medicine," says: "Simple continued fever may greatly resemble mild cases of typhoid fever. It is common to meet with patients who exhibit for a week or more, a fever of continued type for which no satisfactory cause can be discovered, and the exact nature of which must remain in doubt even after convalescence." The more abrupt onset, the absence of the characteristic temperature curve, the comparative infrequency of nervous or abdominal symptoms, of epistaxis, or splenic enlargement, tend to exclude typhoid fever in the diagnosis.

Meningitis.—Typhoid fever beginning with marked nervous symptoms (cerebro-spinal type) may readily be mstaken for meningitis. I have in mind the case of a girl, sixteen years of age, who was taken sick with a severe pain in the head, delirium, stiffness of the muscles of the neck, retraction of the head, muscular twitching and high fever. In the course of a few days typical rose colored spots occurred on the surface of the abdomen, the spleen became markedly enlarged, there was considerable tympinitic distension and some nose bleed. On the appearance of these symptoms, the headache, delirium and other nervous symptoms passed away, and so did my patient. I did not have an opportunity of seeing her during the early days of her illness, therefore, I am unable to say whether there were any typhoid symptoms, especially a gradually increasing fever, in the beginning. However, I was informed by the family that she had not been well for several days, having complained with a pain in her head, loss of appetite and lack of energy. In cerebro-spinal fever the onset is more abrupt, the pain in the head more intense, vomiting more common, while the abdomen is more apt to be retracted, epistaxis less common, enlargement of the spleen less constant and herpes labialis more common than in typhoid fever.

Gastro-Intestinal Catarrh.—Again quoting Pepper: "Gastro-Intestinal Catarrh at times produces a group of symptoms highly suggestive of typhoid fever." However, there are some points by which we are enabled to distinguish the diseases. In acute gastritis we would find marked tenderness in the epigastric region and vomiting, a bright red tongue, sudden rise of temperature with a rapid pulse and diarrhœa with fetid stools. In gastritis there is usually more colicky pain than in typhoid fever. In some of these cases it is sometimes necessary to wait a week or more before a positive diagnosis can be made.

Dysentery.—It is not probable that dysentery would be

mistaken for typhoid fever, inasmuch as the temperature would be found subnormal during the greater part of the day. The frequent and painful stools, and the location of the subjective pain—being low down in dysentery, while it would be more likely to exist in the umbilical region in typhoid, the absence of rose spots and enlargement of the spleen, would enable us to come to a correct conclusion as to the nature of the trouble.

Malaria.—There are several points of difference between these two diseases, some of which may be briefly mentioned: malarial fever is usually ushered in by a distinct chill, followed soon by high fever, typhoid by chilliness followed by a gradual rise of fever. The rapid pulse early in malaria is in marked contrast with the slow and often dicrotic pulse of typhoid. In malaria nausea and vomiting are common, with absence of other abdominal symptoms. The presence of the widal blood reaction would point to typhoid, while the detection of the plasmodium malariæ in the blood by means of the microscope would be positive proof of the existence of malaria.

Septicæmia.—I have had no personal experience with this disease, but I should think the history of the case, the local trouble, intermittent fever accompanied by sweats, the absence of rose spots and widal reaction would establish the diagnosis.

Therefore, the combined symptoms which are present during the first week, and which may be relied upon for a presumptive diagnosis are: a daily increasing fever with headache and malaise, with or without nose bleed, a brownish furred tongue and pulse of 80 or 90 with some degree of bronchal catarrh. If to these be added, during the second week the diazo urinary reaction, enlarged spleen, rose spots and the widal reaction, the diagnosis would be absolute.

The general conclusions, then, with regard to the differential diagnosis of typhoid fever, clinically, are as follows:

1st. That the diagnosis of typhoid fever in the earliest stages of the disease presents probably greater difficulties than that of any other acute infectious disease.

2nd. That there is scarcely any disease accompanied by fever that has not been mistaken for typhoid fever.

3rd. That the disorders most likely to be mistaken for the disease in this country are: tuberculosis, pneumonia, influenza, malaria, simple continued fever, and catarrhal conditions of the gastro-intestinal tract.

I have omitted laboratory methods of diagnosis for the reason that a description of them would be too extensive for a paper like this. However, I would advise continued study along that line, for by the employment of such methods as are now at our command we are enabled to recognize diseased conditions, the existence of which, we have been heretofore, almost, if not entirely, in the dark. When possible every country practitioner should possess at least a microscope, for, by its employment he may confirm a great many of his diagnoses.

In our mountain section of this State the people are becoming familiar with sanitary laws, and as a result, the frequency of occurrence of typhoid fever is becoming less and less each year. The source of infection of every native case can usually be traced to an infected water supply. It is well known that the most of our population depend upon springs for the supply of their drinking water, and that the drinking water of our section is unsurpassed. Occasionally a family will become lax in sanitary matters, build a pig sty so that it will drain towards the spring, or do some other equally unsanitary act, with typhoid as a result. In a paper entitled "An Unappreciated Source of Typhoid Infection," read at the meeting of the Medical Society of Virginia, at Roanoke, by Dr. P. B. Barringer, he calls special attention to the infection of railroad beds as a factor in the spread of typhoid. He claims that the road-bed becomes infected through the dis-

charge of typhoid patients travelling over the road while in the infective stage. The proof he offers in support of this theory, as a means of infection, is very plausible. I regard his paper as a valuable contribution and think it should call for more extensive study along this line. Dr. Barringer is a son of North Carolina, now the distinguished Professor of Medicine in the University of Virginia.

Ununited Fractures.

BY STUART McGUIRE, M.D., RICHMOND, VA.

A generation or two ago writers of popular literature alluded to doctors as "bone setters." To-day they are referred to as pathologists, neurologists, or gynecologists. A generation ago the leading surgeons of the country were famous for their ability to set a fracture—to-day they are better known for their ability to set a fee.

The enormous increase in medical knowledge, the limitation of study to special lines, the fascination of modern aseptic and antiseptic surgery, the striving after the new and original to the neglect of the old and established, have led me to the sad but inevitable conclusion that the average surgeon of to-day is not as competent to treat an ordinary fracture as were his forefathers.

In our medical schools enthusiastic professors teach microscopic technique, serum therapy and the indications for opening the abdomen in obscure diseases, and the student is either referred to his text-book, or turned over to an assistant, for instruction in the diagnosis and treatment of fracture. In our medical societies papers are read and discussed, the mosquito theory of malarial infection, the methods of catheterizing the ureters, and the choice between the perineal and suprapubic routes in prostatectomy, to the exclusion of any but a rare reference to the many important points concerning the reduction and immobilization of a fracture.

I plead guilty as a teacher and writer to having done my part in bringing about this condition of affairs. In fact, the recognition of my own deficient knowledge of "bone setting" has made me determine to give the subject closer study, and has led me to make this plea for the better education of students and the more thoughtful attention of practitioners to

what, if I am not unduly pessimistic, threatens to become one of the lost arts.

Babies are born and bones are broken in every community, and while specialists in large cities may formulate and teach principles for the management of such cases, it is to the general practitioner that the public still looks for deliverance in labor and first aid to the injured.

If lack of study and hence lack of skill shall lead to poor results at the hands of the local attendant, the laity will soon learn to transport fracture cases to the cities, and the country doctor will be responsible for the creation of an additional specialist to the number which already encroaches upon his practice.

With few exceptions, a broken bone properly set and splinted will heal, and the increasing number of cases of ununited fracture that come to a surgeon doing referred practice is a clear index of the lack of knowledge possessed by the average doctor with regard to fracture.

I claim no personal exemption from my own condemnation, for I am free to confess that I respond to every call to set a broken bone with reluctance, and leave the case with misgivings, and I know, from the confidence with which I undertake other work of greater responsibility, that my timidity comes from ignorance.

Public criticism is frequently withheld when a surgical blunder is committed in the abdomen, but it is sharp and relentless when it is apparent in an extremity. A man who dies after an operation is buried and soon forgotten, but the man who had a deformed arm or shortened leg from a badly treated fracture, lives for a generation a walking or limping advertisement to his community of surgical limitation or incapacity. Let us, therefore, study fractures more in order that we may treat them better; if not for the sake of our patients, then for the sake of our profession.

But little has been learned and much has been forgotten in

regard to the immediate treatment of simple fractures since the publication of the classical work of Malgaigne more than fifty years ago, and as this and other books are accessible to the profession, I will limit my paper to a brief review of what has been accomplished and what remains to be done in the treatment of a special class of cases commonly called ununited fractures.

When a bone fails to unite after being immobilized for a certain length of time, the condition is spoken of as either delayed-union or non-union.

Delayed-union is where the reparative action is present, but owing to lack of nutritive vigor, callus is either tardy in development or imperfect in its transformation. Improvement of the general health, the establishment of a more perfect local circulation, or the irritation of the seat of injury by forcibly rubbing the fragments together, may stimulate the halting process and finally result in solid union.

Non-union is where reparative action is absent, from local or constitutional causes, and the result is either a ligamentous union or the formation of a false joint. The ends of the bones round off, the medullary cavities become closed, and blood supply to the part is diminished. There is always abnormal mobility, often displacement of the fragments, and sometimes absorption of the bone.

The division of ununited fractures into delayed-union or non-union is based on the fact that cases in the first class can be cured without an operation, by making more active the reparative forces already in existence by means of constitutional and local treatment, while cases in the second class can not be cured except by an operation, which freshens the rounded ends of the bones, opens up their medullary cavities and changes the existing passivity to the activity of a recent fracture. Unfortunately, this prognostic distinction can not always be made clinically, and usually the surgeon when called to treat a case of ununited fracture, deals with it at

first by non-operative measures with the hope that union may simply be delayed, and should his efforts prove unsuccessful, he operates on it later under the conviction that it is a case of non-union not amenable to less heroic measures.

As delayed-union and non-union can not be differentiated except by the ultimate result in the individual case, it is not only practical but proper to discuss them jointly. Here, as elsewhere, it is necessary to consider the causes which, singly or combined, result in the condition, for by their early anticipation and prevention, or later by their recognition and correction much time and suffering may be spared the patient.

The causes of delayed-union or non-union of a fracture are usually classified under the heads of general and local. Under the first, authorities give a long list of constitutional conditions or diseases; such as age, pregnancy, lactation, acute infectious diseases, starvation, loss of blood, rickets, marasmus and syphilis. All except the last are of doubtful influence, for it is a strange but authenticated fact that failure of a fracture to undergo proper ossification is more apt to be observed in a vigorous adult than in the debilitated, the marasmic or the aged. While it is true that syphilis and fractures are both so common that they must often co-exist without detrimental influence one on the other; still in my personal observation patients with delayed-union have responded so often and so promptly to anti-syphilic treatment that it is now my practice to prescribe iodide of potash in such cases as the first effort to secure union, and this whether any history of specific infection can be obtained or not. If it does no good it does no harm, and as we all know syphilis, like accidents, is likely to occur in the best regulated families, and patients suffering with the disease are sometimes ignorant of their condition or untrustworthy in their statements.

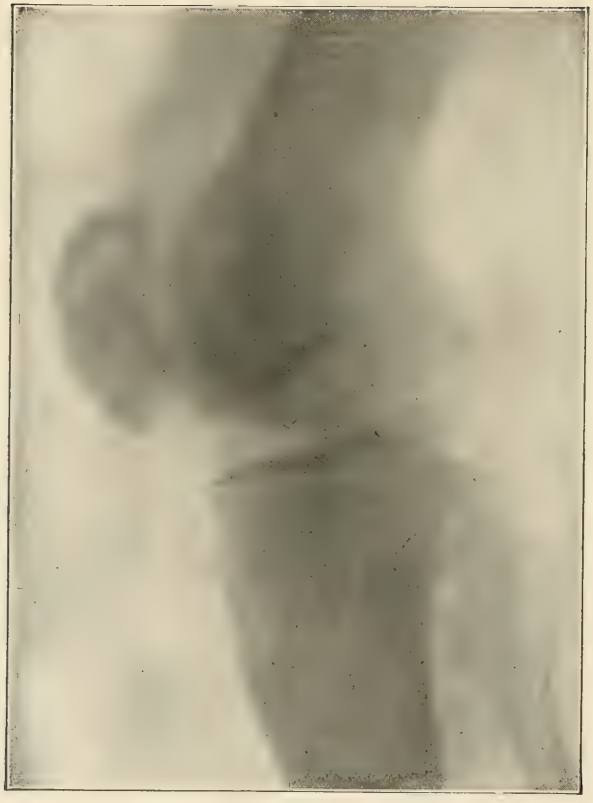
Under the local causes of delayed-union or non-union may be mentioned: 1. Marked displacement or wide separation of the fragments. 2. Interposition of muscle, fascia or for-

eign bodies between the fragments. 4. Defective nutrition through faulty innervation or deficient blood supply. 4. Infection and suppuration, destroying or preventing the formation of callus. 5. Defective immobilization or premature passive motion. In fact, any defect in the primary treatment of a fracture, such as failure to effect accurate reduction or to secure proper immobilization. Too tight bandages, undue pressure of splints, frequent removal of the dressings for the purpose of inspection, and finally permitting the patient to use the limb too soon on account of the unfounded fear that prolonged fixation endangers the function of an adjacent joint.

When a surgeon takes charge of a case of ununited fracture, his first attention should be directed to the general health of the patient. An examination of the urine should be made; errors of digestion should be detected and corrected; anemia and debility should be combatted, and the system gotten in the best condition. If the case is not over a year's standing, iodide of potash should be administered, unless the drug has already been tried without result.

The local treatment should be based largely on the result of an X-ray examination. In some cases it will appear probable that the patient can be cured without subjecting him to an operation; in other cases it will at once be obvious that nothing short of bloody surgery will prove effective, and it will be a waste of time to try milder measures. The following is a brief summary of local methods that have been advised, each of which will prove of service in properly selected cases: 1. Light elastic constriction above the knee, the fracture producing more or less hyperemia. 2. Active use of the limb encased in an immobilizing dressing of plaster of paris. 3. Percussion of the limb by the surgeon with a rubber mallet, or by instructing the patient to strike his heel on the floor, if the fracture be in the lower extremity, or pound the hand or elbow on a table if it be in the upper. 4. Injection of

Case 1. Ununited Fracture of Humerus one year after operation.
Silver Suture indicates line of union.



Case 2. Ununited Fracture Patella three months after operation.

from three to ten drops of a ten per cent solution of chloride of zinc between the ends of the fragments by means of a hypodermic syringe. 5. Administration of an anesthetic and forcibly tearing loose fibrous adhesions, effecting accurate apposition, and treating as a recent fracture. 6. Subcutaneous drilling of the ends of the fragments, the perforations opening up medullary space and the small particles of bone detached acting as a stimulus to plastic repair. 7. Resection of the ends of the bones by an operation, and accurate adjustment of their freshened surfaces, and the maintenance of the fragments in the correct position by means of sutures, nails, medullary splints or bone ferules, all reinforced, of course, by a rigid external dressing which immobolizes the two adjacent joints.

Time does not permit me to discuss several interesting points in the technique of this operation, or to describe many ingenious methods that have been devised to make it one of the most successful and satisfactory in surgery. I therefore content myself with the exhibition of skiagraphs of three of my cases.

The first was a case of a gunshot fracture of the upper end of the humerus, attended by loss of one or two inches of the shaft of the bone. Suppuration prevented callus formation. The ends of the fragments were exposed, squared with a saw, and the revivified surfaces united with a silver wire suture. Subsequent immobilization was secured by rest in bed with sandbags on each side of the arm, and extension from the elbow by means of a modified Buck's apparatus. In the photograph the line of union can only be detected by the location of the silver wire suture.

The second case was that of a man who fractured his patella by muscular violence. He was treated by his physician and good union apparently resulted. He was allowed to get up too soon, however, and by a slight fall widely separated the fragments. Believing that the condition justified

an operation I opened and washed out the joint, freshened the bony surfaces and sutured them together with chromicized catgut. The operation was done three months ago and the function of the joint is perfect.

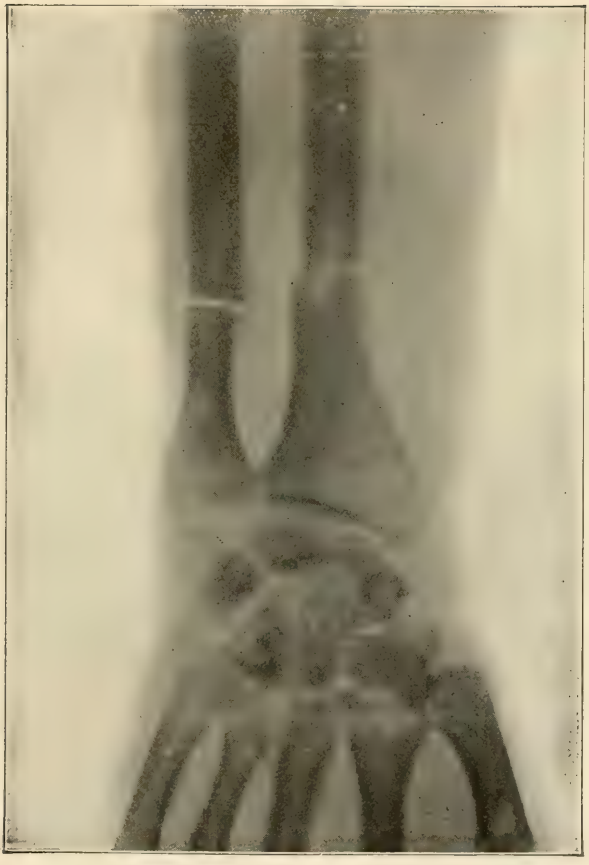
The third case was a fracture of both ulna and radius just above the wrist. The man came to me six weeks after the accident and I found there was no union, owing to overlapping of the fragments from failure on the part of the attendant either to effect or maintain reduction. Muscular contraction was such that I was unable to correct the displacement, so I exposed the ends of the bones through a posterior incision, resected and drilled them and united them by catgut sutures. One photograph shows the arm immediately before the operation, the other shows it two weeks afterwards, when the dressings were removed to inspect the wound. The case is still in splints and it is too early to report final results.

Despite the success that has followed the treatment of ununited fractures since the introduction of aseptic and antiseptic surgery there still remains one fracture that up to this time gives as poor results as it did a century ago, namely, fracture of the neck of the femur. For a time it was believed that failure to secure bony union was due to some unusual pathological condition resulting in failure of callus to form in sufficient quantity to effect repair, but now it is known that the defect is due to failure of known mechanical methods to secure accurate approximation and to maintain adequate immobilization of the fragments.

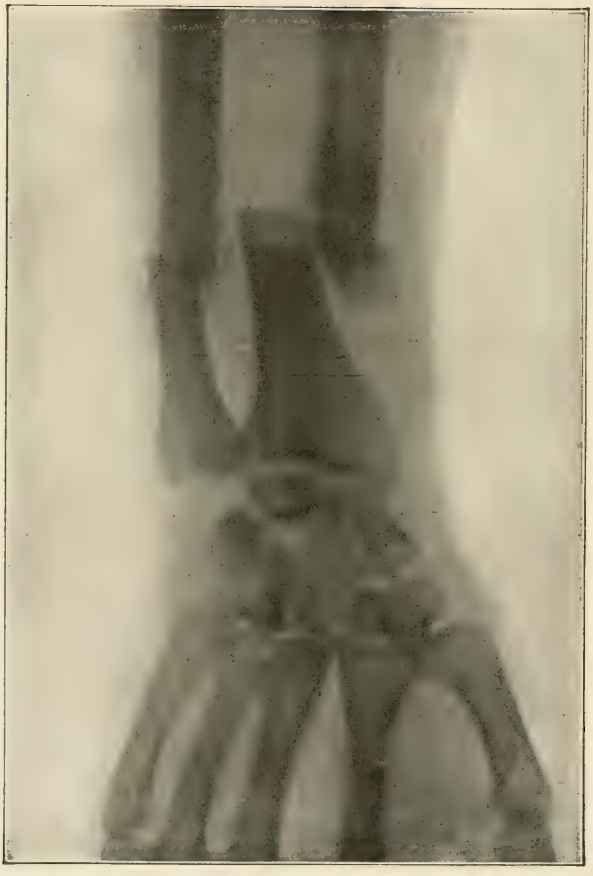
The argument that in intra-capsular fracture of the femur the upper fragment has not sufficient blood supply to maintain vitality, much less to produce callus, is controverted by the following facts:

1. Completely detached fragments of bone at other localities, such as a disk removed by the trephine, take an active part in reparative action.

2. Post-mortem examinations in cases of intra-capsular fracture show that the upper fragment not only maintains



Case 3. Ununited Fracture of Forearm two weeks after resection and Suture of bones.



Case 3. Ununited Fracture of Forearm six weeks after accident.

its vitality but in a majority of cases exhibits evidence of callus formation.

3. In cases of intra-capsular fracture where impaction has taken place, bony union will almost invariably result if the fragments are permitted to remain in opposition for a sufficient time.

4. In experimental cases of intra-capsular fracture produced on lower animals, bony union was the rule when the fragments were held in position by direct fixation with a nail or screw, while in the control cases not treated no union except of a ligamentous nature was ever observed.

Writers no longer lay stress in fractures of the hip on the division into intra-capsular and extra-capsular fractures, but strongly urge the importance of distinguishing between a non-impacted and an impacted fracture. An impacted fracture of the neck of the femur is considered the best setting of the bony fragments that a surgeon can obtain, and the practitioners are urged not to try to elicit crepitus in doubtful cases, but to rely for diagnosis of the nature of the injury on the shortening and aversion of the limb, the change in posture of the trochanter major, and the loss of tension of the fascia lata between the trochanter and the crest of ileum. Post says, "better an imperfect diagnosis for the surgeon and a perfect limb for the patient than a perfect diagnosis for the surgeon and imperfect limb for the patient."

Much more could be written, but I trust I have said enough to convince you that failure to secure bony union after intra-capsular fracture of the neck of the femur is not due to any peculiar lack of reparative power of the part, but to ignorance of efficient means to effect reduction and maintain apposition of the fragments. In other words, the bad results that follow the injury are not due to any fault of nature, but to absence of sufficient methods of treatment.

Buck's extention apparatus in the original form, or modified by counter or lateral traction, rarely if ever secures a

good result. Senn's method of manual reduction and fixation by the application of a plaster paris dressing, with a padded screw incorporated for making lateral pressure against the trochanter, is of doubtful value in the hands of the average practitioner. An open, or subcutaneous operation for the direct fixation of the fragments by suture, nails, or screws, is applicable to but few cases, as the injury usually occurs in the feeble and aged who are but poor subjects for surgery.

The problem of how to treat successfully cases of unimpacted fracture of the neck of the femur is a difficult one, and has not yet been solved. That it will finally be satisfactorterily settled I do not doubt. Congenital dislocation of the hip is rare, and a few men ever have an opportunity to diagnosticate a case. Senile fracture of the hip is common and all of us are frequently called on to treat such cases. The deformity of youth is distressing, but the suffering and helplessness of old age are even more appealing to our sympathies. May this Society have the honor of producing a man who some day will accomplish a work greater than that ever aspired to by the distinguished Lorentz.

(See page 52.)

A Plea for Exploratory Incison for Diagnostic and Curative Ends in Masked Conditions of the Upper Portions of the Abdomen.

BY HUGH M TAYLOR, M.D . RICHMOND, VA.

A plea for an exploratory incision for diagnostic purposes in morbid conditions of the upper portion of the abdomen implies in many instances great difficulties attending a special and differential diagnosis, and also the imperative need of an early diagnosis to bring this field within the province of safe and successful surgery. Pathfinders in clinical surgery and medicine and in the laboratory are here and there noting landmarks of value, but we are in many instances still far from a state which enables even the combined efforts of clinician and laboratory worker to weld a chain of evidence devoid of weak links. In this field, as in others, we have typical cases with classic symptoms, and the diagnosis in such cases is not infrequently easily made. But, unfortunately, we have many atypical cases, and often it is difficult, if not impossible, to arrive at a reasonable diagnosis, and these cases present us with many ante- and post-mortem surgical surprises. *"Qui bene diagnoscit, ben curat"* is signally true as applied to morbid conditions in this field.

A limited study of this subject, as presented in the literature of the day, and a limited experience suffice to show that too many are permitted to die or are consigned to lives of individualism for the want of a correct diagnosis and a surgical intervention which promises, in many instances, the only hope of life and restored health. There is need for every voice that can be raised to sound a note of warning that when in doubt we should not deny the patient the benefit of an exploratory incision. The dread of opening the abdomen and not finding a remediable condition is common experience; but

experience in abdominal surgery confirms the fact that to wait for classic symptoms in many instances is to rob the patient of a probable cure by surgical means. Within the sound of my voice are many who recall how little even the masters in surgery knew of pelvic diseases twenty years ago. Knowing so little of the morbid anatomy and the causes our therapy was often wrong. Not until light was shed into the pelvic cavity through abdominal and vaginal incisions was modern pelvic pathology and the surgery indicated brought to the proficiency of the present time.

In the incipiency of its study, appendicitis was unrecognized by many. Ocular inspection of the virulent infection in the ileo-cœcal region suffices in a majority of instances to convert the greatest skeptic to the wish of consigning such cases to some one else, and not infrequently these new converts are little prone to procrastinate even in the absence of pronounced symptoms. The evolution of surgery of the upper portion of the abdomen promises to rival, if it does not outstrip, that in the pelvic and ileo-cœcal region. To note the confusion of symptoms met with in some of the morbid conditions involving the stomach and bile tract, it will be sufficient to impress this subject; to do more than present a brief of these would carry us far beyond the limits of this paper.

There are perhaps no subjects more pregnant with surgical interest than *ulcer and cancer of the stomach and infection of the bile tract.* An extended review of these would include many phases of gastric ulcer and its sequences, and many phases of the consequences of bile tract infection. If we recall the close juxtaposition of these organs, we note that it is as marked as is the case of the organs in the pelvis, and we have not the rectum and vagina as routes of approach.

Gastric Ulcer.—Some years ago, while lecturing to a class of about one hundred men, to impress the frequency of gastric ulcer, I quoted Ewald to the effect that 6 per cent of the men before me would have gastric ulcer. A few days later, with-

out premonitory symptoms, a young doctor from North Carolina, a member of the class, bled to syncope from a gastric ulcer. At that time our interest in gastric ulcer was largely focused in gastric hemorrhage and in perforation. Later research, largely through exploratory incisions and post-mortems, shows that our interest includes not only the acute complications, hemorrhage and perforations; but conspicuously the sequences of gastric ulcer are full of the deepest surgical interest and importance, and operative intervention for the relief of the complications incident to gastric ulcer has opened up one of the widest surgical fields.

Cases of acute, subacute and chronic ulcer may be manifested by typical symptoms, but all symptoms may be latent; and the first indication may be a gastric hemorrhage of greater or less violence. A perforation anteriorily into the peritoneal cavity, or posteriorly with the occurrence of a phrenic abscess. Conspicuous symptoms, such as circumscribed pain in front, pain reflected to the left scapular angle, hyperchlorhydria and hemorrhage, pain on taking food and the relief incident to vomiting may all be absent, even in the active stage of ulceration, and the symptoms manifested be only such as are common to indigestion from other causes. A knowledge of the possibility of the co-existence of ulcer and unpronounced symptoms has led the progressive spirits in surgery to open the abdomen in suspicious cases of stomach trouble which do not in a reasonable time yield to medical and dietic treatment. The result of this treatment has shown that in a surprising number of cases the cause of the stomach disorder was due to existing gastric ulcer or some one or more of its many sequences.

Few will question the assertion that the prognosis of perforating ulcer of the stomach and duodenum will improve in the same degree as the practitioner learns to make early diagnosis of the case and to immediately secure surgical treatment. My only case of duodenal perforation saved ate a hearty sup-

per, took a long walk, and was on the street when taken with violent pain incident to an acute perforation. For several days she had been treated for supposed slight indigestion. Localized peritonitis sufficient for a time to wall in the threatened perforation by its adhesion to the transverse colon further evinces what progress may go on while the patient is up and about and unalarmed by the symptoms presented.

A case of perforation unsuspected was recently seen; a phrenic abscess had formed and until the symptoms of acute peritonitis were manifested, the patient had not been incapacitated for work. He had, however, been a prolonged sufferer from indigestion. Prior to an exploratory incision, it was impossible for me to be more accurate in my diagnosis than to surmise that it was an abscess from pericholecystitis or perigastritis, probably incident to a perforation of the gall bladder or stomach.

An experience such as I have related in these selected cases impresses and depresses me to the extent of causing me to watch with anxiety cases which ordinarily do not assume surgical importance, but any one of which may do so, and with few, if any, notes of warning. Gastric ulcer assumes a surgical interest when life and health are threatened by hemorrhage, by perforation and peritonitis, by perforation and phrenic abscess, by pylorospasm, pain, vomiting, by perigastritis and adhesions by scar tissue inducing stenosis of the pylorus, by hour-glass contractions and their sequences, and the soil for the invasion of cancer. If we recall how close these organs are together—*i. e.*, pylorus, stomach, duodenum, gall bladder and pancreas—we fail to wonder that a perigastritis or periduodenitis or pericholecystitis should so commonly induce adhesions and result in a damaged function of the organs involved.

The mission of my remarks, as applied to the stomach, may be summed up in the single comment that in many instances there is a mechanical cause for the stomach disorder; in many instances a perverted motor power and not a secretory disor-

der is responsible for the chronic indigestion. Imperfect stomach drainage from mechanical causes, most of them the results of gastric ulcer, plays an important role in inducing disturbances, and gastro-enterostomy to secure stomach drainage includes within its scope the largest field for operation in benign diseases of the stomach. Early operative intervention finds the patient in the best condition to stand the ordeal of an operation. Experience at the hands of so many whose opinions merit confidence evince the truth of the claim that it is not conservative to prolong indefinitely the medical treatment of indigestion of obscure origin. Operative intervention has disclosed in too many instances the fact that the cause would never be remedied by other than surgical means.

I have no wish to pose as an extremist. I do not wish to be classed as a pessimist as regards the work of the interne, including the painstaking laboratory worker. Every revolution in surgery savors of radicalism. It is equally true that stagnation is the soul of corruption, and certainly there is no conservatism in groping in the dark. As one who recognizes the difficulties attending an exact diagnosis, even with the co-operative work of clinician and laboratory worker, I join in the plea, now so commonly expressed, for a more frequent exploratory incision in those cases which are not relieved by less radical means within a reasonable time.

INFECTIOUS INFLAMMATION OF THE BILE TRACT.

Twelve per cent is a conservative estimate of the frequency of gall stones. By some it has been placed as high as 10 per cent of men, 20 per cent of women, and 30 per cent of the insane.

It is estimated that 2,000,000 cases of gall-stone exist in the German Empire all of the time, but fortunately only 100,000 of the two millions of cases have symptoms sufficiently pronounced to enable the diagnosis of gall-stones to be made. One million nine hundred thousand are in the so-

called quiescent state. It is known that by no means every case of cholecystitis results in gall-stone formation, any more than does every case of urinary cystitis result in the formation of stone in the bladder. Cholecystitis, being more common than gall-stones, must indeed be frequent in its occurrence. If we accept the conclusion that gall-stones are the sequence of cholecystitis, just as vesical concretions are sequences of cystitis and appendiceal concretions sequences of appendicitis, we must concede that there must have been symptoms of cholecystitis—only they were beyond recognition as such by the profession. Few recognized cases of gall-stone are met with that have not been through a prolonged course of treatment for indigestion in some form, and not infrequently for malaria, biliousness, etc. Infectious cholecystitis, and cholangitis are widespread in their influence through the bile duct and pancreatic duct infection, through the formation of gall-stones and their sequences, and through peri-cholecystitis and peri-cholangitis and adhesions.

The diagnosis of typical cases is often a matter of grouping symptoms and history, but the occurrence of atypical cases is far from infrequent. To differentiate an acute cholecystitis from an acute appendicitis is often impossible. A perforation of the gall-bladder or rupture intra-peritoneal of a pericholecystic abscess with local or general peritonitis, is often impossible to differentiate from a perforating gastric or duodenal ulcer with local or general peritonitis, and this is equally true of acute pancreatitis; while a subacute cholecystitis and pericholecystitis may give rise to symptoms indistinguishable from chronic gastric disorder, or even from malaria.

More diagnoses of bile tract infection and fewer cases of biliousness is in keeping with the teaching of exploratory incisions for diagnostic purposes. Exact diagnosis through exploratory incision should not be delayed until gross pathological changes, adhesion or abscess, gangrene, perforation, cholæmia, chronic pancreatitis, hypertrophic biliary cirrhosis

of the liver or cancer places such cases in the class of desperate, perhaps inoperable, surgery. It is as irrational to permit an infected gall bladder to remain untreated and do the damage of which it is capable, as to leave an infected appendix to work the mischief of which it is capable. In doubtful cases, we had better operate many times unnecessarily than procrastinate too long through the dread of operating, because we can not by the symptoms presented be sure beyond question of what we shall find. An exploratory incision is attended by a minimum of danger, and the danger of delay in a majority of cases far outweighs that of confirmatory incision.

Cancer.—If we accept the fact, as stated by Ewald, that "35 to 45 per cent of all cases of cancer involve the stomach," and by Lockwood that "next to the uterus the stomach is more commonly the site of cancer," and by Eichorn that "among all of the organs of the body the stomach is most frequently affected with cancer," and the further fact that cancer is increasing in frequency and is only amenable to surgical treatment when diagnosed in its incipiency, we must be keenly alive to the importance of an early diagnosis. Co-operative work by physician and surgeon was never more valued than at the present time, and in no field of medicine is it more conspicuous than in malignant conditions of the stomach, because of the difficulty and often the impossibility of making an early, special and differential diagnosis. The late diagnosis of cancer of the stomach is made with a fair degree of accuracy, but it is then practically useless to make the diagnosis, as the case has passed beyond the operable stage. Dr. Jonas, in his address on Surgery before the New Orleans meeting of the American Medical Association, says: "Our only course at present is an exploratory incision as soon as reasonable grounds for malignancy exist."

Dr. George H. Brewer writes: "The surgeon is now making much earlier diagnosis of carcinoma than formerly. This

is largely due to laboratory methods, but even these do not give the diagnosis in time to do a really radical operation. Whenever, therefore, a person at the cancer age has a sudden onset of digestive trouble or a sudden increase in such trouble previously existing, suspicion should at once be aroused. An early exploratory incision is attended with a minimum risk, and if malignant disease is discovered it can be treated while the affected area is still very limited and glandular involvement has not as yet occurred. Only thus can the disease be reached at a time when it can be thoroughly eradicated, and by the adoption of this plan excellent results are now beginning to be shown."

Dr. John H. Gibbon reports a case of "supposed carcinomatous obstruction of the pylorus nine months after posterior-gastroenterostomy and exhibited the patient (1) to show that it was a difficult matter to differentiate gastric ulcer from gastric carcinoma when the ulcer is infiltrated even when the abdomen has been opened"; (2) to show the advantage of doing gastro-enterostomy even in the presence of apparently hopeless malignant disease, and (3) to explain why recovery occurs after supposed cases of gastric cancer.

"Pyloric cancer," says Mayo, "by its location introduces mechanical features which enable an early diagnosis. Laboratory diagnosis of cancer of the stomach has little importance during the operable period, because the disease is of too slight extent to interfere with the secretions. When it does so it usually means a hopeless involvement." "Cancer of the stomach," he claims, "can be cured without excessive mortality only when early exploratory operation is undertaken."

Wathens claims, "In cancer of the stomach, chemical and microscopic examinations of stomach contents, of feces, urine and blood are only of greatest value when the disease has passed the inoperable period and often the beginning or the extent of cancerous invasion can only be known positively by an exploratory incision." This same writer says Osler re-

commends that an exploratory operation should be more frequently advised by physicians.

Eichorn believes "cancer can rarely be diagnosed before adhesions have taken place with other organs or before metastatic deposits have formed elsewhere."

According to Ewald, "Cancer of the stomach is an exceedingly insidious disease, and at the outset is not to be distinguished from other affections of the organ which lead to dyspepsia."

Musser says, "Gastric cancer may occur without any symptoms whatever, and be discovered after death from other causes."

Opinions confirming my limited experience could be cited indefinitely. I have preferred to present a census of opinions of others to sustain my position rather than try and impress my own.

With our present means, an early diagnosis can not be made with certainty except by an exploratory incision. It is conservative surgery and should be more frequently practiced.

Nephritis.

BY ROBT. E. MASON, M.D., CHARLOTTE, N. C.

In taking this disease as my subject I fear that I can present little that is new, but believing that the common maladies should not be neglected caused me to select this for my subject, which, I trust, will be of interest to the members of this society.

Nephritides may be classed under two great divisions—parenchymatous, which is sub-divided into acute and chronic, and interstitial, which, from the nature of the disease, must of necessity be chronic only.

Causes.—Acute parenchymatous nephritis, most common in early life, is usually caused by the specific fevers, exposure to cold and wet, pregnancy and ingestion of certain irritant drugs.

Chronic parenchymatous nephritis often follows an acute attack, but is generally chronic from the beginning, and is caused by overeating, excessive meat diet, alcoholism, syphilis, chronic congestion, consequent on disease of the heart and blood vessels, and, in my opinion, constipation with intestinal fermentation and a deficiency of drinking water, causing an actual increase in the first instance and relative increase in the second, of the effete material excreted in the urine, are predisposing, if not exciting, causes.

Interstitial nephritis is almost always caused by the condition causing sclerosis of other organs, such as syphilis, gouty diathesis, chronic alcoholism, middle life or old age, and heredity.

Symptoms.—All nephritides manifest themselves in one or more of the following ways:

1st. Changes in the urine.

2nd. Systematic disturbances.

3rd. Evidences of circulatory disturbances.

In acute Parenchymatous Nephritis the main symptoms come under the head of changes in the urine and system disturbances. These symptoms are diminished or suppressed urine, which is cloudy or smoky in appearance, of high specific gravity, containing a large quantity of albumin, casts, and often some free blood.

The general symptoms are moderate fever, slow full pulse, pain and tenderness in the lumbar region, vertigo, headache, nausea, vomiting, and often oedema, which usually first appears in the eyelids. Uremia is likely to occur at any time.

In the North Carolina State Board examination, held this week, the question, "give diagnosis of the following case: Young man has been exposed to cold, onset sudden, chilliness, some nausea and vomiting, headache, restlessness, muscular twitching, pain and tenderness in the lumbar region, dyspnoea, pulse slow, hard and tense, temperature 102 degrees not constant, pallor and puffiness of eyelids and face, soon a swelling about the ankles and legs, urine scanty, smoky red color, acid, specific gravity 1025, on boiling a thick, curdy precipitate forms?" gives a most excellent picture of acute parenchymatous nephritis.

In chronic parenchymatous nephritis the symptoms come under all three heads. This disease usually begins insidiously, with little to refer to the kidneys. First there is a depression of spirits, loss of energy, easily fatigued, loss of appetite, listlessness and drowsiness, or there may be the opposite phenomena, insomnia and sleep that does not refresh, anemia and loss of weight, are also early symptoms and the pallor of this disease is very characteristic. In this disease there is almost always puffiness about the face, swelling of the feet and ankles, so that after the day's work the shoes are tight; the swelling subsiding during the night. The urine is diminished in quantity, at first the specific gravity is high, but as the disease progresses it falls below normal. The urine is turbid, and albumin is always present

and it may be larger in amount than any other disease of the kidney. On allowing the urine to stand a voluminous sediment will be seen to form, which on microscopical examination will be found to contain casts of all kinds, especially the granular and the broad and waxy varieties.

As the disease progresses the dropsy increases and may be present in large amounts, sometimes involving the serous sacs. Where the dropsy is great the uremic symptoms are not so constant, although uremic symptoms may occur at any time.

Dyspnœa, aggravated by exertion and the recumbent position, is an early and distressing symptom, and is caused by œdema of bronchial mucous membrane, a failing heart, chronic uremia and pleural and pericardial effusions.

The heart is usually hypertrophied and the sound of the aortic valve accentuated.

Albuminuric retinitis, while it often occurs, is not so common as in the interstitial variety.

In chronic interstitial nephritis the principal symptoms come under the head of systemic disturbances and evidences of circulatory disturbances.

The urine is abundant and clear. The specific gravity is low, usually 1005 to 1010, and there is little albumin. The albumin is frequently so small in amount that it may not be detected and sometimes it is absent altogether in the morning urine, therefore it is especially necessary to have the sample of the total quantity passed in 24 hours. The quantity of urea is usually diminished in proportion to the amount of albumin present. Dropsy is usually absent, but there is often œdema of the face and ankles late in the disease.

Dsyponoea is usually present as a prominent and distressing symptom. Headache, vertigo, tinnitus antrium and palpitation give much trouble.

Albuminuric retinitis may occur at any time; this is also true of apoplexy.

The heart, which is always hypertrophied and the blood vessels sclerosed, causes an accentuated aortic sound and a pulse of high tension.

Treatment.—In acute parenchymatous nephritis, as there is an acute inflammation, we should not cause a diuresis by drugs acting on the kidneys, therefore, squills, digitalis, etc., should not be used, but we should resort to the true treatment, which is to flush out the kidneys by administering large quantities of pure water, preferably warm; at this point I will remind you that children like it best sweetened, while adults prefer acids and lemonade. The best food, drink and drug at any age is milk.

Instead of using stimulant diuretics, the other emuctories of the body should be used to excrete the effete material, therefore hot baths should be administered. Concentrated saline purgatives may also be indicated. Baths also help to relieve the congested organs, by bringing blood from the kidneys to the skin. The bath should last from 10 to 20 minutes. The temperature should be about 100 Far., and should be given three or four times daily. After the bath, roll the patient in blankets, put to bed and let sweat for an hour or more.

Pilocarpine hydrochlorate may sometimes be used with with advantage. If uremia convulsions appear, chloroform is indicated, and to prevent a repetition give chloral in 15 to 30 grain doses, repeated if necessary. Morphia may also be guardedly used. As the poison seems to inundate the nervous system by waves, vigilance and active treatment are demanded for several days.

Dry or wet cupping, hot fomentations to the lumbar region, a light diet, largely milk, a warm temperature, confinement to the bed, later to the house, restraints from exercise and excitement, fulfil the remaining indications.

L. Stembo has had good results from ice bags applied to the lumbar region for two or three hours, the bags are then

removed for one hour, then reapplied, alternating in this manner until the urine is free from albumin.

The treatment of acute exacerbation of chronic parenchymatous nephritis, is practically the same as for the above disease, but there is not the same objections to diuretics. The general treatment for chronic Parenchymatous Nephritis is largely dietetic and hygienic. A warm, dry climate, light flannel underwear and frequent bathing are indicated. A non nitrogenous diet, especially milk, should be given and the bowels kept open.

The symptoms of dropsy and dyspnoea, which appear in this disease, usually demand attention.

For the dyspnoea nothing seems to act so well as morphia in $\frac{1}{8}$ to $\frac{1}{4}$ grain doses.

We now come to the treatment of the dropsy and it is to this that I wish to call your special attention. The usual remedy, infusion of digitalis dr. 1 to 4, with potassium acetate, grains 10 to 20, every 3 or 4 hours, acts well. For quick action nitro-benzoate of caffene, in doses of 2 or 3 grains every 2 or 3 hours, can be used. Diuretin, technically known as theobromine-so-dio-salicylate, is also of use. Fluid extract of apocynum cannabinum (Canadian hemp), acting as it does as a heart stimulant, very much like strophanthus and similar drugs and also causing copious diuresis and a diminution of albumin and casts, after all other drugs have failed, is not to be forgotten. In large doses it is also a copious hydrogogue cathartic. The objection I have found to this drug is, that, it being a gastric irritant, it is apt to induce vomiting, unless carefully administered.

Niemeyer's pills contain 1 grain each of powdered digitalis, squills, and calomel or blue mass, often act well. As there is need of iron, Basham's mixture is usually of use.

After everything has proven useless, I have never failed to remove the dropsy with the following combination, acting as

it does principally on the bowels, which in my opinion is a surer route than the kidneys:

Rx.

Antimonii et Potassi Tartras,	grs.	2
Powdered Squills	dr.	2
Potassium sulphate,		
Potassium nitrate aa.	oz.	½
Cream of tartar or compound Jalap powder	oz.	4

Sig. Teaspoonful night and morning.

This compound acts on all the emunctories; skin, bowels, and kidneys, and in addition is a heart stimulant.

Here I wish to call your attention to an article in a recent issue of the Journal of the American Medical Association, entitled, "Abuse of Salt as Cause of Nephritis.—Tarindo of Modena observed marked aggravation of the nephritis in two cases after treatment with saline solution for a few days. He has also observed the cases of two children who had ingested an immoderate amount of salt, followed by nephritis, the diagnosis in one case confirmed by the postmortem findings. Stokvis, Levi, Castaingn and Rathery have induced lesions of degeneration and inflammation in animals by means of sodium chlorid."

I also wish to call your attention to the experiments of Dr. F. Widal and A. Javal, both of Paris. These gentlemen made nine consecutive experiments with salt on a patient suffering from chronic parenchymatous nephritis with marked dropsy. I will not burden the members of this society by giving these experiments in detail but will briefly give an outline.

1. In the first experiment of 10 days, the patient was placed on an absolute milk diet of 7 pints daily. The result of this diet was a rapid diminution of both dropsy and albuminuria. The disappearance of the dropsy was principally by diuresis.

2. In the second experiment which covered a period of eight days, the patient was still kept on a milk diet with 150 grains

of sodium chlorid daily. Result, marked dropsy and an attack of albuminuria.

3. The third test lasting for 11 days, was on a diet of raw meat, potatoes, sugar and butter, in this diet they gave no more salt than in their absolute milk diet. Result, rapid diminution of dropsy and albuminuria.

. The fourth test, which lasted for a period of 7 days, was the same as experiment 3 except with 150 grains sodium daily for the first 3 days and 225 grains per day for 4 days. Result, rapid accumulation of dropsy and increase of albuminuria.

5. The fifth experiment which lasted 4 days was on an absolute milk diet of 7 pints daily. Result, partial loss of dropsy.

6. The sixth experiment lasting for 6 days was on the regular hospital diet, which of course contained the usual amount of sodium chlorid. Result, rapid increase of dropsy and albuminuria.

7. In the seventh test the diet was composed of raw meat, potatoes, butter, sugar and milk, with practically no salt. Result of this meat and milk diet, small in chlorides, was again a rapid diminution of the dropsy and albuminuria until the dropsy was reduced to a minimum.

8. The eighth experiment lasting four days was on a milk diet, of 7 pints a day containing 150 grains of sodium chlorid. Result, return of the dropsy to such an extent as to be alarming and necessitating a returning to a diet without sodium chlorid at the beginning of the fourth day.

9. The ninth and last experiment, covering a period of 18 days was on a diet of bread, raw meat, sugar, and butter, with practically no salt. Result, the dropsy entirely disappearing on the third day, albuminuria remaining stationary for ten days, then gradually diminishing. This diet was continued as the patient's regular diet with no return of the dropsy or albuminuria.

From these experiments these gentlemen came to the conclusion that a meat diet without salt, was no more harmful than a milk diet and that the value of a milk diet lies in the fact that it is poor in sodium chloride.

I wish to call your attention, gentlemen, to the fact that milk is also indicated because it contains about 90 per cent of water.

While these experiments seem to prove conclusively that salt is the harmful agent, still we will hold to the old theory of a non-nitrogenous diet till further experiments are made along this line and which, I trust, will be done by every member of the society.

After the removal of the fluid if it should have been in pleural, pericardial, peritoneal or scrotal cavities, it seems from an article I see in a recent British Medical Journal that the injection of Adrenalin solution (1 to 1,000) will in some way not fully understood at the present time, prevent the reaccumulation. Dr. James Barr of Liverpool, after removal of fluid injected into the pleural cavity 1 dr. of adrenalin solution and, although the patient was suffering from cancer of the pleura, no more fluid accumulated.

Ascites caused by cirrhosis of the liver, in which marked results were not expected the rapidity of the accumulation was diminished. The quantity used in this case was 2 to 3 dr. In another case of tubercular peritonitis, two treatments of four pints of sterile air and 2 dr. of adrenalin solution produced a cure. From these results it is to be hoped that adrenalin will prove useful in chronic parenchymatous nephritis with dropsy of the serous sacs.

The treatment of chronic interstitial nephritis in regard to dietetics and hygienics is much the same as for chronic parenchymatous.

As headache, dizziness, vertigo, tinnitus aurium and palpitation are usually the most distressing symptoms and as the hypertrophied heart and arterio sclerosis, which usually ac-

companies this disease, make apoplexy very liable to occur some drug that will dilate the blood vessels and reduce the blood pressure is indicated. Spirits of glonoin in 1 minim doses every 4 to 6 hours increasing till the desired effect is secured or potassium iodide in 5 to 10 grain doses seem to be the best drugs for this condition.

As this is the most innocous of all nephritides the patient seldom dies from this disease, but from some complication, apoplexy being the most common complication, the patient should be warned never to allow constipation or straining of any kind whatever.

Gas—Ether Anaesthesia.

BY SOUTHGATE LEIGH, M.D., NORFOLK VA.

In 1890, while House Surgeon at Mt. Sinai Hospital in New York City, I became interested in the use of Nitrous Oxide Gas, familiarly called "Laughing Gas." At that time it was practically unknown to our profession, but was much used by dentists in the extraction of teeth. Being acquainted with Dr. Hasbrouck, a dentist on Broadway, who did much of the extracting for the city members of the profession, I witnessed some of the doctor's work, which averaged from 15 to 25 cases a day. He anæsthetized patients of all ages and conditions of health, and did not hesitate to operate on cases of cardiac disease. Indeed, he made no physical examination to learn the condition of the heart and lungs. This surprised me greatly, but he assured me that he had never had a bad result.

Following this experiment I bought a gas outfit from the White Dental Manufacturing Co., consisting of an inhaler, tubing, bag, and a small steel cylinder, containing 100 gallons of gas compressed to a liquid. In this form the gas could not deteriorate on keeping. We used this in the hospital in minor operations and painful dressings, requiring not more than a few minutes time. Since then I have continued to use gas in my office and hospital practice in similar cases.

The Gas-Ether method did not come into general use until during the past two years. It has practically revolutionized the anæsthetizing of patients, and has, I have no doubt, saved many lives, especially in the North. The Southern surgeons have always had the advantage over the Northern ones in their familiarity with chloroform. During my term as Interne at Mt. Sinai Hospital, I had the good fortune to serve under Gerster, who was the most thorough and careful surgeon in New York City. He was a Hungarian, and brought

with him to America many of the customs of the "Old Country." At that time, Mt. Sinai and the German Hospital used chloroform extensively. In the other New York hospitals it was practically unknown, and in one prominent institution its use was absolutely prohibited by the Board of Directors. Such was the fear of chloroform, a fear grounded largely on ignorance. At the same time chloroform was used almost as exclusively in the South as ether in the North, and I doubt not that our northern brethren lost more cases from ether, than the Southern surgeons did from chloroform, but the former had the advantage of not having patients die on the table. They died later from pneumonia and nephritis. Notwithstanding the fear of the effects of chloroform, ether was used most recklessly. The youngest assistants were the anæsthetizers, and in the Gynecological Department of Roosevelt Hospital at one time, an undergraduate did all the etherizing. A very large amount of ether was given, much more than was necessary to keep the patient "under," and the commencing of the anæsthesia was usually done in a most cruel and heartless manner. The cone was soaked with ether, and put immediately on the patient's face, being held there tightly, notwithstanding his violent struggles for breath, due to its suffocating effects. I believe that the harsh methods of etherizing in the North had much to do with prejudicing the public against surgical work.

It is easy to understand, then, how the profession in the North, and especially in New York City, has adopted so extensively the new method of anæsthesia introduced by Dr. Bennett, who has invented an ingenious apparatus for its administration. The patient is first made unconscious by nitrous oxide gas and then gradually the anæsthetic is changed to ether.

The anæsthetizing of patients in New York City has been practically revolutionized by the new method, which has done a great deal of good in two ways: First, by furnishing

a safer and less disagreeable anæsthetic; and, second, by making the profession pay more attention to the administration of anæsthetics in general. I understand that the larger hospitals now have regular professional anæsthetizers, who give the anæsthetics when desired in special cases, and also have charge of the training of the internes in this most vital branch of surgical work.

I believe that in the South chloroform has been used almost as recklessly as has ether in the North. We need reform in this line, both in private practice and in hospital work. To my mind, both chloroform and ether are most dangerous drugs, and I am frank to say that I have always been afraid of both of them, and what is more, I do not want a man to anæsthetize a patient for me, unless he is thoroughly impressed with their danger, and constantly on the watch for signs of trouble. The anæsthetizing of my patients gives me more anxiety than all the rest of my surgical work combined.

Formerly it was my practice in the ordinary run of cases, where no contra-indication existed against either chloroform or ether, to start very cautiously with the former until the patient was fairly well "under," and then change to the latter. During the past twelve months or more, I have used the gas-ether method in all such cases, and have been delighted with the results. It is without doubt the most perfect method so far discovered.

Gas is rather pleasant than otherwise, and patients rarely object to taking it, and it leaves no disagreeable impressions on their minds. A few deep inhalations suffice to render the patient unconscious, then ether is mixed with the gas, and finally the patient breathes pure ether only. The time required to induce full anæsthesia is shorter than with chloroform, and much shorter than with ether alone.

Compared with ether anæsthesia alone, the amount of ether consumed is much less, and what is more important,

less of the irritating drug gets into the system. Compared with chloroform-ether anæsthesia, the new method avoids the depressing and dangerous effects of chloroform. Gas apparently has no bad effects whatever.

The method of procedure is simple. The Bennett apparatus which I exhibit to you, is attached to a cylinder of compressed nitrous oxide gas; by turning a stop-cock the gas is allowed to fill the bag. Usually a gallon is all that is required. If more is needed the bag can be easily and quickly refilled. The inhaler is fitted tightly to the patient's face, several breaths of air are allowed first, then the gas, until the patient is unconscious, and then a little ether is let in from the ether chamber, mixing with the gas. The amount of ether is gradually increased until the patient is freely anæsthetized. Dr. Bennett uses his inhaler throughout the entire anæsthesia, replacing the gas attachment with a bag similar to the old Ormsbee and Clover inhalers. Using this bag makes the patient breathe the expired air over and over again many times, and partially asphyxiates him. I do not think well of this part of Dr. Bennett's method. Some years ago I used the Ormsbee inhaler in a series of cases, and kept complete records of each case. I found that less ether was required and that breathing the air over again had the advantage of warming it, and yet I also observed that there was considerable depressing effect on the heart. My plan then in the gas-ether method is to use the Bennett apparatus until the patient is well "under," and then change to the ordinary old-fashioned ether inhaler made of newspaper and towel.

My excuse for presenting so simple and well-known a subject before this distinguished body is that I have been deeply impressed with the advantages of this comparatively new method of anæsthesia, and am anxious to see it adopted generally by the profession throughout the South. Everything that tends to make surgery safer and pleasanter for our patients apeals most strongly to me.

And now a word on the subject of the administration of anæsthetics in general. The modern surgeon is not paying to this vital branch of his work the attention that its importance demands. In some of the best hospitals of the country the anæsthetic is entrusted to incompetent and unreliable assistants, and little or no attention is paid to many most important details.

As soon as an operation is contemplated the physician in charge of the case, whether in or out of a hospital, ought to begin to get the general system in better order. Especially should the heart be looked after, strychnine and spartiene being indicated in the majority of cases. The patient should be put on simple food, large amounts of water, and mild cathartics. As much of this preparation as possible should be done before the patient enters a hospital, so that operation need not be long delayed.

Thorough cleaning of the mouth and teeth is important. Septic material from the mouth drawn into the bronchial tubes is liable to produce broncho-pneumonia.

The choice of the anæsthetic depends largely upon the age, and condition of the heart and lungs. Chloroform is best as a rule for children and old people, for patients with respiratory or renal diseases, and for operations about the throat. If chloroform is taken badly it is usually permissible to change to ether. The gas-ether method is proper with all patients where ether is not contra-indicated. In some cases, especially alcoholics, it may be necessary to change to chloroform on account of bad breathing.

The selecting of the anæsthetizer is even more important than the anæsthetic. No man should be given this duty who is not fully alive to the dangers of anæsthetics, and constantly on the watch for signs of trouble. The operator ought never complain of incomplete anæsthesia, if he knows that it is due to the extreme caution of the anæsthetizer. It may interfere seriously with the smooth conduct of the operation, but far better this than to have the patient's life in jeopardy.

The greatest security in anæsthesia comes from the anæsthetizer's noting the earliest and slightest signs of depression, and of promptly combatting them, either by a change of anæsthetic or by the administration of stimulants. A general anæsthetic should never be given without at least some of the usual emergency remedies being *ready;* such as hypo-syringes filled with strychnine sulph., sparteine sulph., caffeine and soda benzoate, and whiskey; infusion apparatus; rectal syringe and oxygen apparatus. Also such instruments as mouth gag, tongue forceps and throat mop.

Besides choosing a cautious and well-trained anæsthetizer, the operator should, as far as his own work will permit, watch the patient's condition himself, and have the anæsthetizer report to him from time to time as to the state of the pulse.

In my own work I always feel safest with an assistant who is very much afraid of the bad effects of both chloroform and ether. I find that with such an assistant my patients rarely get into any serious danger.

(See page 54.)

Asthma, its Etiology and Treatment.

BY JAMES SAWYER, M.D., ASHEVILLE. N. C

Bronchial Asthma briefly stated is a neurotic affection, characterized by spasms of the bronchial muscles; a hyperæmia and turgescence of the mucosa of the smaller bronchial tubes, and a peculiar exudate of mucin. The essential predisposing cause is an abnormal condition of the respiratory centres, the exact nature of which is at present unknown. The paroxysm may be due to the direct irritation of the bronchial mucosa, or may be induced reflexly by irritation of the nasal mucosa, and possibly also indirectly by reflex influences from stomach intestines, or genital organs through irritation of the pneumogastric nerve, or any of its branches of communication. Asthma is a term which is generally applied to certain conditions of dyspnœa (hence cardiac and renal asthma) but in reality its use should be limited to the affection known as bronchial or spasmodic asthma.

Etiology. Many theories are extant as to the cause of asthma, but we shall mention only a few of the most important and reasonable ones. Practically all the authorities agree that asthma is a neurosis. The theory long ago advanced by Trousseau, the chief advocates of which are Hyde, Salter and Biermer, is the most probable one, and is now more or less generally accepted, namely, that the spastic nervous element (which can not be wholly disregarded in any explanation of bronchial asthma) consists of a tonic spasm of the muscles of the bronchi.

Many authors like Weber, Traube, Clark, and others, consider the underlying cause of asthma to be due to an acute swelling of the bronchial mucosa, as a result either of a sudden dilation of the blood vessels arising from nervous influences or of a very acute catarrh.

There are others who consider that in many cases it is a special form of inflamtion of the bronchial tubes. (The Exudative Bronchiolitis of Curschmann).

Many other theories may be mentioned and possibly have some weight, but the three mentioned above are those most generally accepted as being more nearly correct. Among the less prominent theories are those which attribute the attacks to a spasm of the diaphragm, or reflex spasm of the respiratory muscles, to the Curschmann Spirals, the Charcot-Leyden Crystals, etc.

The fact lately corroborated by numerous observations of Voltilnim, Frankel, Hack, Daly, Roe, Bartholow, and others, is most important, namely, that the asthmatic paroxysm is frequently of reflex orgin, starting from some disease of the nasal mucosa. We find quite often that asthmatic patients are suffering from chronic diseases of the ear and nose, like chronic catarrh, nasal polypi, deflected bodies of one or more of the turbinated bones, and that after their removal the asthma disappears. In this connection may be cited the noteworthy fact that many asthma patients have an attack brought on by certain odors (as for instance the smell of ipecac, freshly roasted coffee, flowers, hay, etc.). Trousseau, who himself suffered from asthma, always had an attack on smelling violets. Hence hay fever is an affection which has many resemblances to asthma with which the attacks may alternate (hence the name "Hay-Astma"). In the suddenness of the onset and in many of their features, these diseases have the same origin and differ only in site, as was suggested by Sir Andrew Clark, and is now generally recognized by specialists.

"Making due allowance for anatomical differences, if the structural changes occurring in the nasal mucosa during an attack of hay fever were to occur also in various parts of the bronchial mucosa, their presence would afford a complete and adequate explanation of the facts observed during a

paroxysm of bronchial asthma." (Clark). With this statement I fully agree.

It is somewhat doubtful whether a pure bronchial asthma can have a reflex origin from other distant organs. The connection between asthma and disease of the pharynx, or hypertrophy of the tonsils, is more than probable in many instances, but the statements as the occurance of asthmatic paroxysm in diseases of the stomach, of the intestines, or of the female sexual organs are to be taken only with great reserve. We usually have to do here with a confusion between pure asthma and other conditions of dyspeona (as nervous dyspeona, conditions of cardiac weakness, "dyspeptic" dyspeona, etc.).

"In a large number of cases, which seems to us to be most characteristic, the disease can be explained, in our opinion, only by the hypothesis of a peculiar primary disease of the bronchial mucous membrane, particularly affecting the terminal twigs of the smaller bronchi; and whose special feature, somewhat like the spasm of the glotis in whopping-cough, consists in the occurrence of a reflex bronchial spasm. The whole type of the disease and the peculiarities of the expectoration, the spirals and crystals, furnish unequivocal testimony for this theory of asthma. (Strumpell.)

Curschmann, therefore, holds that the anatomical basis of these claims is an "exudative bronchiolitis." He observes that in a majority of cases asthma is associated with an exudation, such as might be supposed to come from a tugested mucosa, and which is of a very characteristic and peculiar nature. The hyperæmia and swelling of the mucosa and the extremely viscid, tenacious mucus explain well the hindrance to inspiration and expiration and also the qualities of the rales.

In mentioning some of the general facts with reference to the etiology of asthma it will be noticed that frequently the affection is hereditary. That it runs in families and descends from parents to children and even to grandchildren.

Particularly is this so in those with very irritable and unstable nervous systems. It is common in families with a strumous or phthiscal history, and in other families certain individuals may suffer from asthma and epilepsy in turn, or the asthmatic paroxysms may alternate periodically with neuralgic attacks.

The disease is most frequently from the second to the fourth decade, though it may begin early in childhood and last sometimes to old age. It may be contracted at almost any age. It is more frequent in men than in women (possibly two to one). Pulmonary affections have an important bearing in determining the asthmatic habit, either through bronchial irritation from atmospheric or other causes, or as a sequence of pneumonia, broncho-pneumonia, etc. One of the most striking peculiarities of asthma is the extraordinary varieties of circumstances which at times induce a paroxysm, and of these climate and atmosphere are most important. For instance, a person may be free in the city, and yet invariably suffer from an attack when he goes into the country, or into one special part of the country, or vice versa. Such cases are by no means uncommon. Breathing dust, or the air of a particular room, or place, may induce an attack, and as already mentioned, odors (particularly of flowers and of hay, and of various animals) may cause a paroxysm.

Diet has an important influence, as an attack may be caused by overloading the stomach.

Gout, skin diseases, rheumatism, and the uric acid diathesis generally are frequent causes of an attack, each or any one of them alternating with attacks of asthma. Fright or violent emotion of any sort may bring on a paroxysm. Chronic cases, in which the attacks recur, year after year, gradually become associated with emphysema, and every fresh "cold" induces a paroxysm.

Occupation and mode of life have a certain influence, for while asthma is certainly more common among professional

men who lead a sedentary life, and in general among the better classes with sensitive nervous organization, than among out-doors laborers, still it is often met with among the poor, both in hereditary and secondary form. High livers of full habit are prone to asthma, although the typical appearance of the chronic sufferer, is thin, high-shouldered, round-back, and nervous.

The treatment of asthma must necessarily be divided into the treatment of the acute attack and the treatment during the interval. When first called to see a patient with asthma he generally has an acute paroxysm, and immediate relief is necessary. To accomplish this the inhalation of chloroform, ether, or a nitrate of amyl pearl broken up in a handkerchief, or of fifteen to thirty drops of iodide of ethyl on cotton is frequently all that is needed. Sometimes a hyperdermic of morphine is indicated, or large doses of chloral or potassium bromide. Great care is necessary in exhibiting chloroform, stromonium, belladonna, and depressing narcotics, as they must not be used when the patient has a weak heart, and especially where the attack is due to a cardiac affection, as they are here dangerous. Morphine must be used carefully in order to prevent the forming of the morphine habit. Codeine may be used when morphine is indicated, but is debarred by reason of its causing nausea, vomiting, etc. Atropine does good at times, and may be combined with morphine. Strong hot stimulants or a dose of spirits of chloroform in hot whiskey, or Hoffman's anodyne, will sometimes induce relaxation. Cocaine applied locally to the nose in cases due to nasal abnormalities frequently gives prompt relief. The use of adrenalin hypodermically and by local application is oftentimes of great service. I have found it to be of real advantage in numerous cases, especially when there is a congested nasal mucosa, and in "hay-asthma." Inhalation of carbonic acid gas has been useful in many cases. It is supposed to act by abolishing the reflex sensibility of the larynx,

and has cut short the paroxysm when given during the attack. The sedative anti-spasmodics, such as belladonna, henbane, stromonium, and lobelia, may be given in solution or used in the form of cigarettes. Nitre paper made with a strong solution of nitrate of potash is very serviceable. Many excellent cigarettes are manufactured for asthma, and they do good at times. Most of them contain some plant of the order solanaceæ, with nitre or chlorate of potash. Filling the sleeping room at bed time with the fumes from nitre paper or some of the asthma cigarettes or powders will sometimes ward off an impeding nocturnal attack. In some patients tobacco acts as well as other forms of cigarettes, especially with those who are not accustomed to using it. Paralyehyde, thirty grains hourly, is recommended by Mackie. Citrate of caffeine is good in bronchial asthma, and in bronchitis associated with spasm of the bronchial tube. Free ventilation supplies fresh air and does good. Inhalations of oxygen are also efficacious at times. Strong coffee is worth trying, as is also nitro glycerine. When the stomach is overloaded after a hearty supper, the use of apomorphine as an emetic and expectorant will bring prompt relief, but this is contradicted in the patient who is greatly debilitated or who has a weak heart. Wine of ïpecac, lobelia, or antimony, may also do good.

The application of cold over the pneumogastrics in the neck, or to the upper spinal regions is sometimes successful in relieving the attack. Electricity (galvanization and faradization of the neck) will likewise give relief. Nitrate of sodium may also be used successfully. See advocates the use of inhalations of pyridin. Duenas recommends antipyrine, grains 15, every three hours, as being especially effective in anæmic cases, but it soon loses its power and does harm sometimes by increasing the severity of the subsequent attack, especially in cases associated with bronchitis. Penozldt employs the tincture of quabracho, tablespoonful, pure or in emulsion.

Mustard plasters to the chest and calves and hot applications are sometimes useful, as is also the putting of the hands and feet in hot water, or the inhalation of the vapor of turpentine or ammonia. The use of the pneumatic cabinet may be beneficial. I have in several instances cut short an attack by the use of the inhalation of medicated vapors from a compressed air apparatus.

Finally, all the various idiosyncrasies of asthmatic patients regarding the influence of light, darkness, temperature, etc., must be carefully considered, and oftentimes much is to be gained by giving the patient his "favorite" remedies, or those drugs to which he has been accustomed.

In considering the treatment during the intervals, we should remember that prophylaxis, both as to diet, hygiene, and habits, is very important. The stomach should at no time be overloaded. A carefully restricted diet should be insisted upon, and an abundance of fresh air supplied. The heavy meal should be taken in the early part of the day, and gastric digestion should be practically completed before retiring. When the attack is due to flatulance, the carbohydrates should not be allowed. All abnormalities of the nose and nasal pharynx (adenoids, polypi, swollen turbinates, etc.) should be treated and if possible eradicated by removal with electro-cautery, snare, chemicals, etc. Patients with the uric acid diathesis (gout, rheumatism, skin diseases, etc.) should receive appropriate treatment with the alkalies, salicylates, etc., and any known cause should be removed, if possible. Emphysema may be somewhat relieved by the cabinet or compressed air inhalations for the respiratory gymnastics. "If the opinion of Landouzy that true asthmatics not infrequently have an element of tuberculosis is well founded, there is reason to think that other toxins also may promote the asthmatic symptom-complex; and especially the streptococcus toxine. Hence an explanation of the cure of asthma in certain cases by anti-streptococcic serum. (Boucheron.)

Every precaution should be taken by the asthmatic patient to maintain the best possible bodily condition. All kinds of baths and out-door exercises are good. The bowels, kidneys, and skin should be kept properly active. Change of climate and scene is in many cases very advantageous. The Asheville plateau of Western North Carolina has been proven a very excellent resort for many asthmatic sufferers, who gained great relief here, and many are cured. Sometimes an ocean voyage is very beneficial. The benefit derived, however, is frequently proportionate to the improvement in the bronchial catarrh which has become chronic, or to the various chronic conditions which have been benefited. Those who have been living at the seashore or about the sea level, it is well to send to the mountains, and vice versa. The same applies to inhabitants of the country, and of the cities and towns. The change alone frequently accomplishes much good.

Special efforts should be made to build up the nervous system and render it more stable; and for this electricity, tonics, or anything else available or useful for each individual case should be persistently tried, since in asthma, as in tuberculosis, and many other affections, we certainly must individualize, and do so very carefully and thoroughly.

Of the drugs which have been used for the treatment of asthma it may truly be said that their name is "legion"; but the best and most reliable one is potassium iodide, in gradually increasing doses, and exhibited for a long time continuously—at least several months. When potassium iodide is not tolerated the syrup of hydriotic acid may be very effectively used. This or potassium iodide should be pushed to the limit of toleration, if necessary, before being given up as worthless. Fowler's solution and other forms of arsenic are also very valuable. Strychnine given hyperdermically is best for the exhaustion, dyspnœa and fever which sometimes follow a prolonged attack. Rest, systematic feeding, tonics, and stimulants, are also good.

In certain cases of "hay-asthma" so-called, and similar cases where there was an acute congestive condition of the nasal or bronchial mucosa, or both, I have obtained splendid results from the use of adrenalin or the dessicated ext. of the suprarenal capsules, internally, and I should advise its trial in such cases.

Iron, quinine, sulphur, all kinds of tonics, alteratives, antispasmodics, sedatives, and "specifics," have been used, and some are undoubtedly of value, but we must be careful not to overdose our patient, and give only those things specially indicated. If we do this, and at the same time carefully watch the nose, throat, and ear for abnormalities, and remove them, get a thorough history of the patient's habits and tendencies, and appropriately treat them, and remove all known conditions that might cause the attack, by careful study of each individual case, there is no reason why our percentage of cures should not be reasonably large and satisfactory.

The Local Clinical Laboratory.

BY MARTIN L. STEVENS, M.D., ASHEVILLE, N. C.

Intelligent treatment can be instituted only after a correct diagnosis has been made, and it is a recognized fact that there is no aid to diagnosis more sadly neglected than the aid of the clinical laboratory. But our physicians are not wholly to blame for this. Many of them were graduated before microscopy was taught practically in the schools and when many of the present laboratory methods were still unknown. The demands of a busy practice upon their time have not permitted all of them to take up these studies later. But each year our knowledge of the specific causes of the various diseases and of the pathologic changes which they induce becomes much extended, and with this extension of our knowledge our constant daily need of the microscope and the reagent glass becomes more imperative. Only recently the work of Councilman and his assistants has paved the way for the definite laboratory diagnosis of smallpox in the doubtful cases which have hereunto so stood in the way of effective quarantine. Recently, too, the bacillary cause of one of the forms of dysentery has been established. The different Yellow Fever Commissions have added much to our knowledge of the specific cause of this disease. The bacteriology of the blood is receiving valuable contributions and the problem of immunity is being investigated with such ability and energy as presage the early solution of this enigma. And much work is being done that is interesting and of far-reaching import. But it is not to these most recent advances that I would call special attention but to the more common conditions that the busy practitioner meets with almost every day and in which he needs laboratory data. He must know the urinary findings in the different forms of nephritis, cysti-

tis and glycosuria. The presence or absence of Neisser's cocci in a vaginal or urethral discharge, and of the Kleb's bacillus in suspicious tonsil exudates. The sputum must be examined in every case of cough that continues over ten days, and in asthma; the feces in suspected uncinariasis; the blood in the different forms of anæmia, in leukæmia, in suspected malaria and typhoid; in appendicitis, tuberculosis and the other diseases in which concealed pus formation is suspected; the gastric contents in dyspepsia and in suspected gastric cancer. In these and in many other every-day conditions the laboratory aids to diagnosis and prognosis should be called into constant requisition.

Many forceful illustrations could be given of the need of this much neglected aid, but reference to the confusion that constantly occurs in regard to the most common of the continued fevers and the indecision and errors that occur in diagnosing them and the manner in which malaria is made a pack horse upon which is saddled the responsibility for everything not otherwise readily accounted for is all that is sufficient. Malaria and typhoid may often do present symptoms which at the onset are so identical that experienced diagnosticians are at the time unable to distinguish them. Nor is it yet clearly established in the minds of all that there is not a mixed or mongrel type of those diseases. The intermittent fever of tuberculosis is also easily mistaken for malaria. Some may argue that it makes no difference whether the diagnosis is made at the beginning of treatment or later as the treatment would in many cases be the same any way. But it does make a difference. The physician has a greater duty than that of caring for his patient and restoring him to health. That greater duty is seeing to it that his patient does not constitute a source of infection to others. Feces and urine are not usually disinfected until the necessity for it is seen. Meanwhile the evacuations find their way into the water closet, the surface closet or onto the soil and may later

infect entire communities. It is in this way that such frightful epidemics as the ones at Ithaca, Butler and Columbus are possible. We all admit the truthfulness of Pasteur's dictum: "It is in the power of man to drive infectious diseases from the face of the earth." For years we have known that Eberth's bacillus is the specific cause of typhoid and that proper disinfection of all typhoid excreta would soon check its ravages. But succeeding years show little diminution in the number of its victims, nor will they until we make general use of all the aids to diagnosis. This applies to other diseases as well as to typhoid. There is sad significance in the fact that of the cases sent to the division hospitals during the Spanish-American war and which proved to be typhoid only half of them had been previously diagnosed as such. We know that the regimental surgeons were as well qualified as the average physician who was not in the service, and this fact is not mentioned here for the purpose of criticising them, but only to illustrate the contention of this paper. The assertion is sometimes made that he who has not time to examine into the health of any given case has not time to treat that case as it should be treated and in consequence should not undertake it. In the general truthfulness of this statement we would concur. But with the busy practitioner circumstances will often necessitate the using of ways and means of economizing time. And just as the pharmacist and the trained nurse are called upon to prepare that which is prescribed and carry out the details of treatment so also will the clinical laboratory have to be called on to make examinations which lack of time, equipment or special skill makes it impossible for physicians to make themselves, and which in justice to their patients and to their trust as guardians of the public health they dare not leave undone. But right here is where a difficulty arises. Our clinical laboratories are located in the large cities that are centers of medical education and are too far removed from us to be of practical service

in the majority of our cases. Many specimens must be examined at the time they are obtained. Others are not properly prepared for transportation and arrive at the laboratory in bad condition. And in the majority of instances we want the report at the time instead of after a week or ten days as is usually required when the specimen has to be sent a long distance. Hence our plea—the establishing of clinical laboratories at home. In every county of the State there is need of one and work enough to support it. Particularly are they needed in the larger towns. In every county there are physicians who are especially qualified for laboratory work and who could devote a part of their time to it without conflicting with their regular practice. And in every county there are broad-minded physicians who realize the need of having this work done and who find it impracticable to do it themselves or to have it done by the laboratories located at a distance. Then why can we not have laboratories located where they are accessible to us? The scope of this paper does not permit going into details of the manner in which they might be established. We believe that if the physicians of a community are really interested in the matter ways and means will suggest themselves. Qualified individuals will take up the matter as private enterprises. Busy practitioners will employ capable assistants to do their laboratory work and from the income derived from work done for other physicians pay their salaries. Several physicians will unite in fitting out a laboratory to be used in common. And if necessary the county medical societies can take up the matter and devise ways of creating them. But at all events they are necessary and we cannot afford to be without them.

Scope-Diagnosis and Treatment of Neurasthenia.

BY EDWIN B. FEREBEE, RALEIGH, N. C.

There are two nervous diseases of the functional class, par excellence, hysteria and neurasthenia. The history of hysteria shows a progressive tendency towards greater precision of thought, towards a limitation of the disease from the vague and misty circle of everything which, in some fashion or other, seems "hysterical," down to cases which (1) *are absolutely proven not to be organic,* and (2) present some of the *definite* criteria by which to-day we reckon hysteria, the paralyses, anæsthesias, etc.

The evolution of ideas in regard to neurasthenia has not yet proceeded so very far. Among all the innumerable symptoms which belong to "nervous prostration," the feeling of fatigue, the easy exhaustibility, the irritability and other emotional disturbances chiefly of the depressive type, the multifarious bodily pains and sensations and the fear of places and of what not—where are we to draw the line in order to obtain a more definite clinical picture? Wide differences of opinion exist. While for many, "nervous prostration" is *the* nervous disease of the age, for others it does not exist. Thus, Thomas J. Horder, writing in St. Bartholomew's Journal for 1902-3, Vol. X, p. 67, takes the ground that there are many symptoms of functional nervous weakness, central or peripheral, which do not fall into sufficiently definite categories to constitute a special disease, and are sufficiently summed up by the name "nervous debility." For him, neurasthenia is a multiplex symptom, or syndrome, some of the cases, especially the hypochondrical ones, being really mental disorders, while others should be grouped under diseases of the several organs to which the symptoms relate, even though it be admitted that the condition is one of insufficient innervation of that organ. And when neurasthenic

symptoms follow clearly traceable cause, such as influenza, trauma, sunstroke, calling the symptoms sequelæ of those conditions answers all present needs of medicine.

In such a maze it would not seem easy to get one's bearings, yet there is one method which can yield definite results. In regard to hysteria, Gower sounded the key-note when he said that the disease was not to be diagnosed—because the patient offered some symptoms which it was fashionable to regard as "hysterical," but only because it had been definitely established that the patient had no organic disease to account for the symptoms, and that in the examination every symptom of organic disease was to be allowed its full weight. What is true of hysteria is also true of all functional diseases. The only way in which the diagnosis of functional disturbances of the heart can be established, is as a disturbance for which the most rigid examination discloses no organic basis. This method, then, is the only sound clinical method, and it leads at once to the consideration of the question of how to conduct the examination of a patient presenting the symptoms of "nervous prostration." As regards the symptoms themselves, they might be said to cover everything, so numerous are they. This over-luxuriance has led to cases being classified into cerebral, spinal, cardiac, etc. It is, however, rather more important to recognize the more distinctive symptoms which are the fatigue symptoms in all its various manifestations, as repugnance to exertion, and to any kind of thought, and its correlated symptoms, the easy exhaustibility; the feeling of pressure in the head, frequently as though a band were drawn around the forehead; the uniformly, or predominantly, depressive mental tone, usually associated with irritability, the usual daily rhythm of worse in morning and better towards night—form a grouping to which associate themselves in every given case a host of more special symptoms which often dominate the clinical picture. These symptoms may in one case suggest cardiac, in another gastro-intestinal disorders; or they may be prima-

rily suggestive of nervous disease, or they may involve the reproductive system, (dysmenorrhœa, abnormally frequent emissions).

As above remarked, nothing but a thorough examination will put one on the right track. And the examination must be thorough, and not one of the ear-on-the-chest and finger-on-the-pulse kind. It must be all embracing, and each organ must be passed in review as though it were the only one in which there was any question of disease. The heart, its outlines and the condition of the valves, but especially the functional capability of its muscle, for it is only their bearing upon this final question that gives to valvular and other lesions their importance. The lungs, especially for signs of early tuberculosis. The stomach, by inflation, or position and size. The intestines, for indigestion and putrefaction. The kidneys, for mobility, and for nephritis. Perhaps neurasthenia is as often indigestion as anything else; that is, an autointoxication from products of gastric, but more especially intestinal, putrefaction. At least such is the opinion of some who have had wide experience.*

The viscera having been passed in review, general diseases have to be sought for and excluded, especially early tuberculosis, cancer, exophthalmic goitre, gout, also the occupation poisonings, such as plumbism, etc. Also the condition of the blood in case any indication is found, should be investigated.

Having finished what might be termed the general examination, the examination from the standpoint of the neurologist is begun. There is no special mystery about it; only the conscious following out of all the threads, any one of which may suffice as a clue to lead the examiner out of the labyrinth into the clear light of day.

The central idea in a neurological examination, is the *constant comparison of points symmetrically situated on the*

*Thus, F. Savary Pearce and H. Booker, express this view in International Medical Magazine, New York, 1902, p. 81.

two sides. By this comparison, which can be made as detailed as necessary in the given case, we ascertain whether any difference exists in the action of the two sides, or in the sensation of the two sides. The power of the two arms, and legs, the grasps of the hands, the power of the extensors of the feet, (weakness of which in combination with absence of knee jerks, speaks for alcoholic polyneuritis), the symmetry, or asymmetry, of movement of the two sides of the face, of the eyelids, of the eyes in all directions, of the tongue—all these carefully tested without the disclosing of any difference, warrant one in saying that no defect of motility exists.

Similarity for sensation: Comparative tests of the two sides with light touches of cotton wool, the patient's eyes being, of course, closed, will reveal any departure from the normal. The special senses are then tested. The eyes for acuteness and extent of vision, (absence of construction of the visual field). The ears for the distance at which each hears a watch the other being closed, and in case of defect, for the amount of hearing with the watch laid upon the skull (bone conduction, absent in nervous deafness). Finally pain, temperature, smell, and taste, can be similarly tested where any indication sems present. The reflexes are then examined into; the knee jerks being the type of the tendon reflexes, the planters that of the skin reflexes. Also the reaction of the pupils to light. Lastly, the power of the patient to coordinate, to stand with feet together and eyes closed, to button his clothes, to enunciate words distinctly, etc.

I have been thus explicit, almost I fear to the point of tediousness, because the neurological examination is too apt to be regarded as a thing apart, something beyond the possibilities of every day practice. Yet as I have tried to show there is really nothing in it beyond the power of any careful clinician. Indeed, if to the above scheme were to be added the ophthalmological examination of the fundus, and the electrical examination which is not often necesary, one would have everthing carried out by the most exacting specialist.

There now only remains one group of affections with which neurasthenia can be confounded, the mental disorders. And, in fact, it is probably more often confounded with them than with other conditions; especially, with those lighter grades of mental disorders which do not find their way into the insane hospitals.

Among mental disorders neurasthenia is perhaps most often confounded with incipient general paralysis. Both may offer the easy exhaustibility, the dislike of work, the easy irritability; in connection, it may be, with a feeling of weakness, headache, insomnia, and vertigo. Here mistake in diagnosis can be avoided by recurrence to first principles, that neurasthenia shall be such only because it can not be anything else. A careful search for bodily signs, inequality of pupils, (worth little by itself, but much in association with sluggish reaction on the dilated side), for absent knee jerks, for beginning speech defect; on the mental side, for evidences of slight but deep defects; the age and sex, and to a certain extent, a history of previous syphilis, and the fact that the general paralytic is quite apt to show a rather decided under appreciation of his bodily symptoms in sharp contrast with the keen over-realization of the neurasthenic; also general paralysis is apt to lack an obvious sufficient cause.

The diagnosis is at times also quite difficult from beginning dementia precox (adolescent insanity, so-called), many of the long drawn out cases of which pass for years as neurasthenia. Here it is above all important to recognize the presence of a peculiar, progressive dementia characterized by weakness of judgment, (often exhibited in the bizarre nature of the hypochondriacal delusions), the emotional apathy, the poverty of thought, the loss of ambition, groundless laughter, and foolish, childish behavior; and, later on, the mannerisms, stereotyped actions, and negativism. Also the age is important, nearly all dementia precox developing before 25, while acquired neurasthenia is rare till after that age.

Also the lighter grades of the melancholias, these grades which rarely come under the alienist's care, are very liable to be mistaken for neurasthenia. Especially is this true of circular insanity. (Kraepelin's manic-depressive group). These cases are those of individuals who, during their whole lives are rarely normal; they are either above or below the plane of mental health; either unduly elated, or unduly depressed; unusually an alternation of the two. The recognition of this distinction is here of importance, as suicide is much more frequent than with pure neurasthenics. In these cases of circular depression, (for it is chiefly the depressed phase which is liable to be mistaken for neurasthenia) medication has no effect, no improvement occurring until a change takes place in the emotional state, a change which is entirely generated within, of itself, and without assignable cause. This fact, and especially the existence of previous attacks of a similar kind which upon "recovery" very likely passed over into a heightened emotional stage, suffice for the diagnosis, even though a sufficient cause may seem to be present for the individual attack. Then too, the proportionately more rapid development, and the predominance of the emotional tone, are important marks.

From hysteria the diagnosis should not be very difficult in typical cases; though there is, of course, nothing in either disease which renders the patient immune against the other, especially when both develop upon the same neurotic basis. Hysteria presents a number of somewhat definite marks; especially the paralyses and the anæsthesiæ, whose distribution and course (suddenly appearing, suddenly disappearing), are characteristic; convulsions, disturbances of the color sense, form a picture which when at all rounded out, ought not to be mistaken. Also the course in hysteria is far more changeable, in connection with emotional factors, than in neurasthenia in which there is a more uniform depression. Hysteria is, moreover, predominantly a disease of females, whereas neurasthenia is more common in males.

As regards treatment, it is more than probable that the

examination will have disclosed indications, that is, that with our increased precision in examination methods, so-called simple, pure neurasthenia will become correspondingly rare. But supposing that the negative result of the examination leaves us in presence of such case, the treatment should embrace rest, and isolation, massage, electricity, and hydrotherapy, superalimentation, and drugs. Of these superalimentation is the most important, and the rest are really adjuvants, so to speak. Thus rest serves to diminish the demands for food during the earlier stages when digestion is feeble and the amount of nourishment that can be assimilated, is limited. The following is a sketch of the management of a severe case, given by Dr. Curran Pope in the Inter. Med. Mag. for 1903.

7 a. m., dripping sheet, temperature and duration according to the case; rest. 7:30, breakfast and tonic; rest. 9:30, manual, or mechanical massage for 30 to 40 minutes, glass of hot milk; half hour's rest. 1 p. m., dinner and tonic; rest for an hour. 3:30, general faradism for 30 to 40 minutes, glass of hot milk; rest.

6 p. m., supper and tonic. 8:30 to 9, general pack, or hot or cold sponge to spine, glass of hot milk, laxative or hypnotic.

In Dr. Pope's sanatorium a milder case receives:

6:30 a. m., glass of hot water. 7:30, regular breakfast. 9:30, mechanical massage, an hour's rest, recreation of a short walk. 12-1 p. m., rain, fan, jet, douche, etc.

1 p. m., dinner, followed by an hour's rest. 4:30, gymnasium or short walk; rest.

6 p. m., supper. 7-8 p. m., static or galvanic electricity. 9 p. m., malt or hot milk, hypnotic or laxative.

The above schedule will show how the patient's day is charted out, so that he is kept occupied all day, if only at resting. The personality of the nurse in charge of such a case is not unimportant. A tactful, resourceful nurse, one who can preserve an equable, cheerful demeanor, and can divert the patient from his gloomy forebodings, and

autoclinical observations, is a great desideratum. Such a nurse can do much to render the principle of isolation effective. The intent of that principle is, of course, the isolation of the patient from a circle of over-sympathetic friends with whom the comparative merits of remedies and the wonderful cures of Dr. so-and-so, are no doubt, matters of frequent cheering sick room conversation.

As regards diet, almost anything that will do for cases of gastro-intestinal disorders, will do for the neurasthenic. A simple, easily digested diet is the only essential. It may include roast or broiled meats or poultry, stale bread, cereals, eggs, most vegetables, light desserts, etc. It should, of course, especially avoid fried articles, pastries, difficultly digestible and easily fermentable articles such as lobster, crab, rich cakes, candies, etc. The main point in the dieting is to secure superalimentation, to get in just as much as the patient can digest. This is secured by a regimen such as that cited above, in which a glass of milk or hot soup, is given between meals.

Besides the ordinary articles of diet , we have in this day of strenuous pharmaceutical activity a number of food preparations, many of them partially pre-digested. A number of them are good. Horlick's malted milk is good. Somatose is good. Great claims are also made for the various wines of beef and iron.

The methods of massage are too well known to require any detailed description. The rubbing is begun with gentle, dry friction of the skin, which is gradually shaded into firmer and deeper friction and kneading until all the structures have been subjected to a thorough manipulation, the masseur working, of course, in the direction of the circulation. He begins with the limbs, and ends with the trunk. In the massage of the back the patient lies upon the abdomen with a pillow under him, and the masseur's hands are carried down the muscles on each side of the spine, and then spread outwards, the balls of the thumbs here playing the principal part. In the massage of the chest two prin-

cipal movements are employed; a firm stroking following the ribs out from the sternum, and a deeper kneading in which the balls of the thumbs play an important part. Massage of the abdomen is begun with a kneading of the small intestines. Then the colon is followed out from beginning to end, and if constipation is present, the procedure is terminated by several minutes' tapping over the course of the descending colon with the palmar surfaces of the tips of the fingers, this procedure often succeeding where other manipulations have failed. The massage should occupy from a half hour to an hour, and should be followed by at least a three-quarters of an hour's rest.*

The subject of electricity in therapeutics is a somewhat mooted one, some claiming great results from certain methods of appliances, others believing that the effect is partly mental, partly due to the current being a convenient way of securing passive exercise with the associated improvement of circulation. For a detailed description reference must be made to the numerous work on electro-therapeutics.

Turning now to the question of hydrotherapy, if one has at his command all the resources of a modern day sanatorium, he is fortunate. Under those circumstances he can apportion neatly matters of temperature, and especially of force, of the water, and perhaps may thereby obtain more definite results. It is not, however, to be supposed that because one is not so fortunately situated that he must forego altogether the use of hydrotherapy. There is much that can be done in an ordinary bath room. With the patient seated on the edge of the tub, or kneeling in it, the hot or cold douche can be applied to the spine, and hot or cold sponge baths can be administered, while the packs can be carried out with a wet sheet wrapped round the patient, with blankets outside of it. Also saline can be used. Indeed, apart from regulation of force of jet and the minuteness of subdivision of it, which are, of course, not unimportant matters, a bath-room furnishes a fair "hydropathic institute."

* T. Savary Pearce, International Medical Magazine, 1903, VII, p. 93.

I have now outlined the essential features are of the rest treatment. In these days we are apt to think of it as the only one. The experience of MacCoy is, therefore, rather interesting as showing what may b accomplished in circumstances where there is no possibility of carrying out the rest treatment.* As a dispensary physician MacCoy has dealt with a class of patients with which only a drug treatment was possible. And his experience is that a number are greatly benefited and recover entirely on no other treatment. Outside of medication the most he is able to obtain is a sponge bath daily, and increased air and sunlight, the value of which he inculcates particularly. The mental treatment is extremely important. The physician should impress his patient with confidence, make him believe that he understands his case, that he is going to get well, and when the setbacks come, as come they will, allow the patient to see that the physician is not discouraged, that he had counted them in advance, and that his opinion is unchanged. The patient should be instructed to talk over his condition with no one but the physician.

With drugs two symptoms are nearly the first point of attack, constipation and insomnia. There is no drug more valuable than the bromides in 10 and 15 grain doses with several drops of Fowler's solution. Under treatment it almost always happens that on the first return the patient shows distinct improvement, though naturally the treatment is no short one. It is important also that the physician take the patient into his confidence, to a certain extent, and explain to him the nature of the symptoms most complained of. This course, we might add, offers the best opportunity for the injection of hopeful suggestions.

When we turn to the question of drugs, we are practically beginning anew the study of materia medica. The relief of chronic constipation demands the use, above all, of cascara (rhamnus purshiana) and of aloin, belladonna and strych-

* MacCoy, Brooklyn, Medical Journal for 1903, Vol. XVII, pp. 399-401

nine; in connection with such measures as dieting, exercise, massage, and perhaps daily enemata.

For insomnia we have likewise a host of remedies; the greatest care being necessary not to form habits. For this reason it is well not to allow the patient to know what he is taking, if it can be avoided, and to change remedies every now and then. Where the sleeplessness is merely the result of "nervousness," bromide may suffice, or chloral, or a combination of the two. Later and better, though more expensive hypnotics, are trional, sulfonal, paraldehyde, chloralamide, etc. They are good, especially trional and sulfonal. It might be mentioned that the very difficult and slow solubility of sulfonal involves one valuable possibility, that it can be used where patients get to sleep rather easily but tend to wake up in the early morning hours. The maximum effect of sulfonal takes place about four hours after administration, and it thus serves to keep the patient asleep. I myself have had a favorable experience with Somnos. The average dose is a desertspoonful to a tablespoonful. Its action too is manifested several hours after administration.

For the rest the drug treatment is that of any symptoms which arise. Perhaps the most frequent are those of the gastro-intestinal tract, due to auto-intoxication during digestion, faintiness in the stomach, headache coming on an hour to two after eating and due to intestinal indigestion and putrefaction, often associated with gapping, extreme lassitude, marked mental depression, irritability, or perhaps overpowering drowsiness, etc. For intestinal indigestion the use of intestinal antiseptics, beta naphthol, salol, etc., are indicated. For cardiac symptoms, such as palpitation, small dose of digitalis and bromides to regulate the action produce relief.

These neurasthenics in which abnormally frequent nocturnal emissions are present, and which are much weakened

thereby, and especially much disturbed mentally, can be relieved with certainty by chloride of gold and sodium, 1-40 grain t. i. d.; a remedy which we owe to Robert Bartholomew. The dose is important, as a larger dose usually produces weakness of the vesiculæ seminales. It is probable that the remedy acts by toning up the mouth of these ducts, at least patients profess to feel such an action.

In conclusion, it is a somewhat trite remark that there is no condition which, take it all in all, taxes more the patience and skill of the physician than the month in and month out successful management of a case of neurasthenia. Yet, it is a condition for which much can be done by the proper co-partnership of physician and patient. And, I might add, that there are few diseases whose skillful handling, more advances a physician's reputation.

Cholelithiasis With Special Reference to Surgical Treatment.

BY ALFRED C. WOOD, M D., PHILADELPHIA, PA.

After I had accepted the courteous invitation of Dr. Parrott to read a paper before this Society, I was confronted with the usual difficulty of selecting a suitable subject. I naturally had a desire to chose something that might interest the majority of my audience. With this thought in mind, I have taken a topic of practical rather than historic or academic interest. I was led to discuss cholelithiasis with you because my interest in this subject has been awakened recently by a personal experience in quite a number of cases. If a further justification of my choice be needed, I may refer to the commonly accepted statement that from 5 to 10 per cent of all adults are affected with gall-stones. Kehr, without reference to whom no discussion of this subject would be complete, says: "In malignancy and insidiousness no disease of man compares with cholelithiasis."

This may seem a startling declaration to many of us, and yet no one is better qualified to give an opinion on this subject than its author.

We will be somewhat prepared for such a statement when we consider the complications to which biliary concretions give rise, as enumerated by Robson, whose name is inseparably connected with the history of modern gall-stone surgery. The list is certainly formidable, and is as follows:

Complications of Gall-stones.
(Robson.)

1. Ileus, due to atony of the bowels, enormous distension and symptoms of acute obstruction, apparently caused by the violent pain.

2. Acute intestinal obstruction, (a) paralysis of bowels due to local peritonitis (pericholecystitis); (b) volvulus of

small intestine; (c) stricture of intestine, caused by bands due to gall-stones; (d) impaction of gall-stones in intestine.

3. General hemorrhages from chronic jaundice with or without cancer.

4. Localized peritonitis.

5. Dilation of stomach due to adhesions about pylorus.

6. Ulceration of biliary passages and fistula in intestine.

7. Stricture of cystic or common duct.

8. Abscess of liver.

9. Localized peritoneal abscess.

10. Abscess in abdominal wall.

11. Fistula at umbilicus or elsewhere on surface of abdomen.

12. Empyema of gall bladder.

13. Infective and suppurative cholangitis.

14. Septicemia and pyemia.

15. Phlegmonous cholecystitis.

16. Gangrene of gall-bladder.

17. Perforative peritonitis.

18. Pyelitis on right side due to stone or abscess ulcerating into pelvis of right kidney.

19. Cancer of gall-bladder or ducts.

20. Subphrenic abscess.

21. Pleurisy or empyema.

22. Pneumonia of lower lobe of right lung.

23. Chronic invalidism.

24. Suppurative pancreatitis.

25. Chronic interstitial pancreatitis.

26. Infective endocarditis.

27. Cirrhosis of liver.

This enumeration is probably not complete, but it is the most comprehensive I have seen, and certainly is quite sufficient to command our serious attention.

I must confess at the outset that I have no new facts to present, but trust that we may mutually profit by reviewing that, with which you are probably all familiar.

I might have confined my remarks to some technical surgical aspect of this subject, but this would interest the surgeons only. Besides, the operative technique has advanced so much more rapidly than our diagnostic methods, that I desire to refer briefly to the latter.

Gall-stones, as you are aware, are composed chiefly of cholesterin, which may exist in a pure state, but it is usually combined with bile pigment, bile salts, lime mucus and degenerated epithelim.

Etiology.

Writers are almost unanimous, at the present time, in the belief that gall-stones form as a result of an infection of the biliary tract. This conclusion has been reached, partly because it has been shown that under normal conditions the bile is sterile, whereas microorganisms are almost always present in cases of cholelithiasis; but especially because Welch and others have found that in many instances the nucleus of a gall-stone was composed of colonies of bacteria. The manner in which this infection takes place has not been satisfactorily determined. Three possible sources are described.

(1) Through the general circulation; (2) through the portal circulation from which the germs are eliminated by the hepatic cells; and (3) from the duodenum by continuity through the common duct.

The first of these probably furnishes very few cases. The fact that bile is usually sterile would seem to show that the liver cells do not under normal conditions, excrete living bacteria. It would appear, therefore, that some alteration of function or structure must take place before these cells allow germs to pass into the bile ducts.

It may be assumed that in the majority of the cases there is an ascending infection from the duodenum, especially as the greater number of cases are associated with the bacillus coli communis or the bacillus typhosis. In this condition,

however, we should remember that healthy bile is not a favorable culture medium for bacteria and that it flows more or less constantly into the bowel, against which current, the infecting organisms must be supposed to advance and in a fluid which, normally, inhibits bacterial growth. In addition, it is said that the duodenum does not usually harbor many germs, and we may also suppose that a normal papilla would be an effective barrier to their entrance into the common duct. Hence it is probable that some change in the duodenum or bile ducts precedes the biliary infection.

As showing the influence of bile on bacterial growth, Ehrett and Stolz injected cultures of streptococci into the gall-bladders of animals. They found the microbes thus introduced, disappeared rapidly, and after eight days the bile was again sterile. If, however, the cystic or common duct was ligatured, infection resulted and a cholecystitis was set up. Stagnation of the bile, therefore, seems to be an important etiological factor.

This is analogous to the observations of Guyon, who found that germs injected into the urinary bladders of dogs did not cause cystitis; but if the same experiment be carried out, and the urethra ligated in addition, so that the bladder became over-distended, infection promptly occurred.

Experiments have shown that gall-stones are caused by a mild, attenuated infection, such as would cause a chronic inflammation of the mucous membrane, whereas a severe or concentrated infection gives rise to an acute cholecystitis.

During digestion the bile flows from the liver directly into the intestine, and at the same time the gall-bladder should empty itself. Between the acts of digestion the bile collects in the gall-bladder. If this process is interrupted in any way, infection is liable to follow. Among the causes interfering with the proper emptying of the gall-bladder may be mentioned: prolonged fasting, atrophy of the muscular coat, which sometimes occurs in obese and aged subjects, the debilitating effects of fevers, and various mechanical condi-

tions, such as swelling of the mucous membrane of the ducts from catarrh, malposition of the liver and gall-bladder (lacing), kinds of the ducts, pressure from tumors, adhesions, etc.

The solvents of cholesterin, glycocholate and taurocholate of soda, are said to be deficient in persons who eat but little nitrogenous food, hence farinaceous food may predispose, and meat diet tend to prevent. In diabetes, when farinaceous food is largely avoided, gall-stones are very rare; on the other hand, they are frequently met with in persons who have gout, and who are not allowed much meat.

Gall-stones are seldom observed before the age of 30, and still more rarely before 20, although cases are reported where they have been found at autopsy as early as the eighth month. Women are affected three to five times as frequently as men.

Symptoms.

That gall-stones may exist without causing any symptoms is at the present time a trite statement. With these we have nothing to do in this connection.

In the cases that do have symptoms, the first and most prominent is:

Pain. This varies in different cases from a dull ache to a violent colic; it is usually paroxysmal, occurs irregularly and without apparent cause, often at night, and lasts from a few hours to several days. The characteristic seat of this pain is under the right border, or midway between the ninth costal cartilage on the right side and the umbilicus. It radiates to some extent over the upper abdomen, but especially toward the right scapula. This applies particularly to stones in the gall-bladder and cystic duct, uncomplicated with other pathological changes.

In cases of stones in the common duct, or of adhesions of the pylorus to the biliary tract, the pain may be felt in the epigastrium or even in the left hypochondrium.

A serious cholecystitis causes but a slight sense of pressure or pain in the region of the gall-bladder, lasting a few hours. An acute inflammation excites violent pains. Impacted stones give rise first to a severe colic, and later to a chronic distress, with exacerbations of pain due to a superadded inflammation.

Tenderness is present in all cases of cholelithiasis in which there are symptoms. The higher the grade of inflammation the more acute the tenderness will be. If the gall-bladder is affected, the point of greatest pain will usually be under the ninth costal cartilage on the right side. Stones impacted in the common duct give rise to tenderness in the epigastrium.

Tumor or enlargement of the gall-bladder may be observed. It is present in some instances of stone impacted in the cystic duct, in cases of hydrops and empyema and hypertrophy of the gall-bladder. Courvoisier says that 90 per cent of all cases of enlargement of the gall-bladder are due to causes other than stone.

Vomiting frequently accompanies the attack of pain, and varies in degree with the intensity of the latter. It is more apt to occur toward the end of the attack and often seems to give relief, the relaxation which attends the emesis probably favors the passage of the stone through the ducts.

Jaundice is not a common symptom of gall-stones. It is absent in almost all acute inflammations, also in the early stages of cholelithiasis. According to Kehr, it is present in but from 10 to 20 per cent of the cases. It is a prominent symptom in common duct obstructions, although only about one-third of the calculus obstructions of the choledochus give rise to this symptom.

Rigidity of the abdominal muscles, especially of the right rectus, will be present when there is a high grade of inflammation, particularly in pericystitis.

Fever. Some degree of fever is usually present during the acute attack. It varies with the particular type of the disease, and may be slight or very high. It is a prominent

symptom of the high degrees of inflammation. Intermittent pyrexia is a common symptom of stones impacted in the common duct.

Chill. The cases accompanied by high fever are apt to be preceded by a chill. This, like the fever, may be of any degree of severity.

Enlarged and sensitive liver is present in some of the cases of long standing, but it does not occur, as a rule, as long as the disease affects the gall-bladder and cystic duct only.

Leucocytosis is usually present, the degree depending upon the extent of the local inflammation.

Clay colored stools will be present when there is jaundice, and sometimes in the absence of the latter; the prominence of this symptom corresponding with the degree of obstruction of the common duct.

Highly colored urine will be observed in the same class of cases.

Collapse. In the more severe cases the attack may cause collapse, and cases of death are reported from this cause, induced by the agonizing pain.

Diagnosis.

It is unnecessary to say to you that the diagnosis of cholelithiasis may be easy or exceedingly difficult. When we have associated typical biliary colic and jaundice followed by the presence of stones in the stools, a correct interpretation will always be made. Unfortunately, the problem is usually not so simple.

The clinical picture is confused and complicated in a hundred ways. We have only to bear in mind that the gall-stones may be located in the gall-bladder, cystic duct, common duct, hepatic ducts, or in all of them, that these conditions are associated with inflammation of the biliary tract, either acute, subacute or chronic, and then recall the numerous complications mentioned in the beginning to appreciate the wide range of symptoms which may thus be produced.

Among the conditions from which cholelithiasis will have to be differentiated, are the following:

Appendicitis, gastric, pyloric or duodenal ulcer, carcinoma of the stomach, pancreas or gall-bladder, renal colic, pancreatitis, acute indigestion, lead colic, diaphragmatic pleurisy or pleuro-pneumonia, gastric crises of locomotor ataxia, etc.

I will not detain you with an enumeration of the differential diagnosis of each of the conditions mentioned. This must be made by a critical study of the history of the case and a careful examination of the patient. We should ascertain whether there have been similar attacks previously, the exact manner of onset, the relation to the taking of food, the point of greatest tenderness and the direction of any reflected or referred pain, the presence or absence of fever or leucocytosis. The part complained of should be exposed, inspected and palpated, and at the same time a general survey of all the organs and of the individual in general should be made. In this way only can a correct conclusion be reached in many cases. On this point Kehr truly says: "The pathological anatomy of cholelithiasis forms the foundation for its special diagnosis and treatment, and without its exact understanding, we can neither frame good diagnoses nor initiate a rational treatment."

In this connection, I would like to urge when a physician sends a patient to a surgeon for operation, that he be present at the operation, if possible. In no other way can the pathological anatomy be as well understood.

Treatment.

Cholelithiasis is, I believe, a surgical disease and as such requires surgical treatment. This is not intended to indicate that every person should be subjected to operation as soon as a diagnosis is made. Some cases will be met with in which an operation may properly be delayed, and in others the general health of the patient will be such that any operative interference would be unjustifiable.

Many recent writers have endeavored to establish an analogy between the vermiform appendix and the gall-bladder, especially in regard to the surgical aspects of these structures.

Whilst I think important differences exist, there are undoubtedly many points of similarity, one of the most prominent of the latter being that medical treatment is irrational in inflammation of either organ. By medical treatment, I mean the giving of drugs, and allowing nature to take its course. It will readily be granted that many patients recover if treated or maltreated in this way, but the greatest good to the greatest number will not be accomplished by this method.

Professor Osler, of Johns Hopkins University, several years ago directed that no case of appendicitis be admitted to his ward, maintaining that it was a surgical disease. This was an advanced position at the time, but longer experience has amply confirmed the wisdom of this decision.

I believe that a similar attitude toward gall-stones would be a long step forward, because the surgeon, being familiar with the pathology of the disease from his observations in numerous operations, is better able to decide whether in a given case operation should be advised, than is the physician.

Writers on this subject are in the habit of detailing a number of conditions for which they advise operation. Kehr formulates his practice somewhat as follows:

1. Riedel's advice to operate early while the stones are still in the gall-bladder, is said to be sound theoretically, inasmuch as the graver complications of the later stages of cholelithiasis are prevented. He believes, however, that universal application of this principle in general practice is absolutely impossible, and hence without practical value.

2. If there are frequent attacks of biliary colic which undermine the general health and interfere with the pursuit of the patient's occupation, an operation should be performed.

3. Cases with jaundice which have not been benefited by medical treatment and in which the vitality is evidently be-

coming depressed "and no hope be present for the passage of all the stones, the propriety of the operation is established."

3. Distension of the gall-bladder, whether the fluid be sterile or purulent, requires surgical treatment, as do also pericystic abscesses. Exception is made of those examples of simple hydrops which give rise to few symptoms, the operation being delayed until the distress increases.

5. Surgical treatment should not be postponed too long after the failure of the Carlsbad cure.

6. Patients who have become addicted to the morphine habit as a result of the pain should be subjected to operation. This will afford the best opportunity for the cure of the habit.

7. Carcinoma of the gall-bladder can be treated radically only if the operation be performed in the earliest stages; as, however, many patients refuse operation until the seriousness of their condition forces it upon them, but few cures will be effected.

8. Patients suffering from chronic jaundice due to causes other than stone in the common duct, or incurable disease of the liver, must be operated upon not later than three months after the appearance of the icterus.

9. Patients presenting a tumor of the gall-bladder, a swollen liver, jaundice and fever, should be advised to submit to a prompt operation. The same may be said of the cases with severe continuous symptoms, even without demonstrable local changes after the failure of medical treatment. In such cases the symptoms are often found to depend upon adhesions without the presence of calculi.

10. The sequelæ of cholelithiasis, such as purulent cholangitis, abscess of the liver, peritonitis, subphrenic abscess, pyloric and duodenal stenoses, and ileus, require operation.

11. Each case must be decided upon its own merits.

This is after all the only basis upon which we may reach a rational conclusion. A great many factors must enter into the consideration. We must first endeavor to establish the

degree of seriousness of the condition and the probable course of the case if treated conservatively. Would the patient's prospects be better if subjected to operation?

We must next consider the operative dangers. These would be infinitely greater in the presence of serious organic disease, such as nephritis, diabetes, advanced cachexia from malignant disease, profound icterus of long standing, and ill health and poor vitality in general.

My own view is that when gall stones have given rise to sufficient trouble to permit of a definite diagnosis the patient should be advised to submit to an operation for their removal provided there were no pronounced contra-indications. This does not refer to the very first attack, nor to immediate interference, as it will be proper in many instances to await more favorable conditions. When, however, gall-stone disease has become established, there can be no sound reason for waiting until the health is undermined, the patient's earning power destroyed, and until everything else has failed before the operation is performed, unless other conditions contra-indicate operation. And it is immaterial whether the condition be hydrops, empyema, calculus, adhesions, or a complication of these or other conditions, when the patient's health is threatened or comfort destroyed we should not longer withhold the chance of operative relief. In the meantime, simple cases would frequently become complicated, the mortality of the operative interference would be greater, and structural changes may have occurred which are beyond hope of restoration. We have only to glance at some of the specimens of gall-stones to be impressed that the efforts of nature, even when aided by the best medical treatment, must usually be unsuccessful. Of course, it is not for us to go further than to advise. We must admit with Kocher that "gall-stones are the property of the patient, and if he prefers to treat them and drink Carlsbad water on top of them, that of course, is his privilege. * * * And if the patient choose to let the stones work through *per vias naturales* amid pain and misery, why, that, too, is his individual pleasure."

Even if the patient were willing to submit to all this, it must still be remembered that the stones do not always select the natural passages when they work through.

I shall not discuss the medical treatment, which, as has been stated, must be employed in a number of cases, and which has definite, even if limited indications. This is described in all text-books and is no doubt familiar to you. To strengthen my position, however, I will briefly quote from two writers:

Brockbank says: Not one new remedy of any great value has been discovered in the last 150 years.

In 1757, Coe recommended the following treatment for cholelithiasis: Calomel, opium, oil of sweet almonds, soap in large quantities, mineral water, (Spa, Pymont, and Bath). He insisted on exercise, such as walking and riding. If patients could not afford a real horse, he advised making a dummy or chamber horse for the construction of which he gave directions. Abdominal massage, especially over the right hypochondrium, he thought well worth trying several times a day. If all failed, incision was to be made in the gall-bladder and then remove the stones. Such incision was only to be made, however, if the gall-bladder was adherent to the abdominal wall, otherwise, the escape of bile in the abdomen would be fatal.

At the present time, we would probably not administer soap, although one can imagine the theory upon which its use was recommended; massage might be injurious by causing impaction of a stone in the ducts, and the very restricted indications for operation would not hold to-day.

It has been the fashion for some years to send patients with cholelithiasis whose means would permit, to Carlsbad for treatment. Perhaps no better advice could be given, provided the case is not suitable for operation, or if operation is positively refused.

As to the value of the Carsbad treatment, Krauss, than whom, perhaps, there is no higher authority, and who when

he wrote in 1896, had seen 2,800 cases, says: "With the exception of a few cases, patients during their stay at Carlsbad, adhere pretty strictly to the diet prescribed for them. But how few have sufficient self-control and perseverance to continue such a diet for years; and yet this is an indispensable condition for perfect restoration to health, which means restoration of the bile to its normal state, and keeping it in such condition." In other words, one must become a chronic invalid for several years to be cured by conservative measures. This seems to me a rather severe arraignmnt of what is universally admitted to be the very best medical treatment, and from one who might be considered one of its ablest supporters. Such a view is, however, quite readily comprehended when we look at the calculi and consider the havoc which they produce.

Operative Treatment.

One cannot predict, as a rule, just what measure will have to be carried out until the abdomen has been opened and the gall-bladder and its ducts exposed. A liberal incision is essential for a proper diagnosis as well as for the best operative technique. In this way only can the whole biliary tract be examined satisfactorily and the necessary manipulations be carried out under the eye. A narrow, hard pillow placed under the dorsal region of the patient, brings the structures involved nearer the wound and facilitates the work very much.

Calculi in the gall-bladder, with or without the presence of fluid, may be treated by incision of the gall-bladder, followed by suture of the abdominal wound, cholecystostomy; or by removal of the gall-bladder, cholecystectomy. My preference is distinctly in favor of the former, especially if infection is a prominent factor in the case. If the gall-bladder is shrunken and cannot be brought to the surface, or if the cystic duct is occluded from stricture or otherwise, excision would be proper. The tendency of some operators seems more and

more toward cystectomy in all cases, but I think this procedure should be reserved for definite indications. Ideal cholecystotomy, a term employed to describe removal of stones from the gall-bladder followed by immediate closure by suture, has constantly lost in favor and is not to be recommended.

Stones in the cystic duct may be removed through the gall-bladder, or if impacted may require incision of the duct, or cholecystectomy. If the duct is incised it should be sutured, if possible, and the gall-bladder drained.

Stones impacted in the choledochus will usually require incision of the duct, in which case drainage by means of a rubber tube and gauze packing is preferable to suture; or they may sometimes be forced forward into the duodenum or back through the cystic duct into the gall-bladder. Care must be observed, however, not to loose the calculi in the hepatic duct. Crushing and "needling" calculi will rarely be required. Obstructions of the common duct that cannot be removed, such as carcinomas, strictures, etc., require anastomosis of the gall-bladder with the bowel, cholecystenterostomy.

The various complications must be dealt with according to the necessities of the individual case. No operation should be concluded until the gall-bladder and the bile ducts have been thoroughly inspected and found to be in satisfactory condition, or until the necessary treatment has been carried out.

The mortality following simple cholecystostomy has been reduced to about 2 per cent; after cholecystectomy it is above 3 per cent; operations on the common duct, 6 to 15 per cent. The death rate constantly rises as the complications increase. What stronger argument could one wish for early operation?

In conclusion, let me quote from Robson, who says: "That with due skill and adequate care, operations on the gall-bladder and bile ducts are among the most successful of the major operations."

Acute Ileo Colitis.

BY GUY SMITH KIRBY, M.D., MARION, N. C.

At this season of the year, as well as later on in the summer months, we sometimes have severe cases of this disease and in preparing a paper for discussion on this subject, I do so fully aware of the vast amount of literature giving causes and treatment (especially treatment).

Ileo Colitis may be secondary to any of the infectious diseases, particularly measles, diphtheria, and broncho-pneumonia, but I only want to mention primary cases in infants and children up to the fifth year, as I have treated a greater number of cases at this time.

Etiology.—By taking food in which poisonous products have been formed by bacteria, sudden reduction of temperature by exposure to cold or drafts causing the blood to congest the bowels, by irritating substances, such as unripe or stale vegetables, improperly prepared and undigested food. Foreign bodies also enter in, as in one of my cases. Boy, age 3, swallowed car-seal with about one-half inch of the wire attached, which set up a violent entero colitis. The most common form and the only one I will mention is the Acute Catarrhal Ileo Colitis.

General Symptoms.—Onset usually sudden, pain, fever, vomiting, with frequent stools which differ in character, but are generally yellow with streaks of green and often containing undigested food, followed by mucous and then blood and mucous. At this stage there is very little color. As the disease progresses, in two or three days the stools become jelly-like and change color slightly. Abdominal pain, tenesmus and great thirst are now present and temperature lower than at onset. This usually lasts from five to eight days and then the stools contain gradually more fecal matter and in the course of ten days more, the patient has about recovered. It

is now very important during this later stage of the disease to look carefully for ulceration, especially if there continues to be slight fever.

General Treatment.—(1) Pay strict attention to hygienic surroundings.

(2) Cleanse the bowels of the bacteria and their products and to render the bowel as unfavorable as possible for their production.

(3) To lessen the irritated and inflamed condition of the bowel.

(4) Watch carefully the constitutional symptoms.

Cleanliness should be observed in child's person and clothing, a light flannel gown worn during the day is generally sufficient, fresh air is of the utmost importance, and the bath for the reduction of temperature of over 102 degrees.

First cleanse the stomach and intestinal tract by a purgative, and for this I use calomel in one-tenth grain doses, given every hour until five doses are taken, then every hour or two until one grain is given, followed by castor oil in teaspoonful doses every two hours until bowels move freely. As important as cleansing the bowel at the outset is to give it absolutely nothing to do for twenty-four hours, withhold all food and give two or three tablespoonfuls of albumin water every two hours, and if there is much prostration diluted brandy with plenty of water. Antiseptic mixtures are generally well borne and do good. When irritability continues large doses, fifteen to forty grains of bismuth subnitrate every two or three hours. Opium to be given only when pain is severe or for too frequent stools, the danger of opium in stopping the peristaltic action of the bowels is well known, but it will be well for us to always keep it in mind.

Irritation of the colon is at all times of benefit, as it causes the bowel to move at once and removes offending material.

Case I.—An infant fourteen months old, fed on a modified cows milk, found temperature 102, vomiting frequently, very

sour smelling, abdomen distended and relieved slightly by the passing of gas, diarrheal movements contained mucous, greenish color and later on attended by pain with attacks of blood and violent straining, developing acute ileo-colitis.

Discontinued all food, evacuated stomach and bowels, employed cold bath for the reduction of temperature, calomel in one-tenth grain doses until one grain was taken, followed by castor oil and high irrigation of the colon, this continued twenty-four hours, then commenced with peptonized milk two tablespoonfuls every hour or two followed by a mixture of bismuth subnitrate, Tilden's antiseptic, tincture opium, (deod) with maltopepsine. Patient seemed to recover rapidly and was dismissed in about ten days. One week later was called again for a slight return of the same trouble, and going through with the first part of the above treatment I gave the following prescription and carefully regulated the diet with good results.

Bismuth sub-nitrate, two drachms.
Co. tr. Catehu, two drachms.
Tr. Opium (deod), m 22.
Glycerine, two drachms.
Aromatic Syrup Rhubarb, three drachms.
Cin. water qs ft, two ounces.
Teaspoonful every two hours.

Case II.—A child three and one-half years old. Complained of a very severe pain in the bowels over region of the appendix. Temperature 101. Tongue slightly furred, had vomited several times. Could not straighten right leg, kept it well drawn up. You can readily imagine what my diagnosis was, especially on examining the little fellow closely I found a decided enlargement where pain was located. Parents would not consent to an operation.

Gave large dose of castor oil, followed by high enema, applied hot flannel cloths and poultices. Six hours after giving the oil, etc., had several movements of the bowels which was very painful and the enlargement disappeared, with a great

improvement in the symptoms. On the day following, began to develop acute inflammation of the bowels, a very slight enlargement again reappeared, discharges containing mucous and blood and very frequent, with thirst and great pain; temperature 101 to 104. This continued for six or eight days, when one morning, on giving an enema of warm olive oil I removed nine prune seed from the bowel.

Case III.—Boy five years old. When first seen had a pronounced and well developed case of cholera morbus. Vomiting and frequent discharges. Small doses of calomel at once administered to control vomiting, followed by one-half grain doses and magnesium sulphate.

There was no further trouble at this time, until three days later, when I was again called. This attack was due to eating a large quantity of chestnuts. After clearing the bowels the diarrhœa continued and in twenty-four hours contained blood and mucous and later on shreds of membrane; temperature became high; thirst excessive, as was also the vomiting; crushed ice was given freely, and to check the vomiting a powder composed of the following was given every hour:

Bismuth sub-nitrate, grs. 2.

Cerium oxalate, grs. 2.

Cocaine, grs. 1-16.

The cold bath was employed to reduce temperature with irrigation of the colon, to check the too frequent discharges, large doses (forty grains) of bismuth sub-nitrate with salol was given. This acted nicely and after several hours commenced with albumin water and peptonized milk, followed by animal broths.

The child made a slow recovery and I had his mother bathe him with equal parts alcohol and cod liver oil, rubbed well in the skin twice a day, and prescribed syrup iodide of iron with increasing doses, which proved very satisfactory.

What Laboratory Work Should be Done by the Physician Himself?

BY W H. PRIOLEAU, M.D., ASHEVILLE, N. C.

Specialism in medicine has its drawbacks in proportion to its many virtues. When a specialist locates in our midst the comfortable feeling that a higher authority is present, to whom we can appeal in case of doubt, is truly an agreeable sensation. But while such a state of affairs is full of advantage in times of necessity; at other times, there lurks great danger in his presence, for the tendency is to throw ourselves upon him at the slightest opportunity. Too often we send cases to the specialist which we could and would treat ourselves if no specialist were at hand. I am a firm believer in specialism; but I also believe in a general practitioner having sufficient knowledge of medicine and surgery to enable him to treat the minor diseases of all organs of the body without consulting a specialist. However, in making this statement, I must emphasize one essential fact, that is, that the general practitioner know his limitations—better that the physician send all of his patients to specialists, than that he should undertake to treat a case knowing full well that he has not sufficient knowledge to do so.

But to the point of this paper: it is the private laboratory to which I especially allude. In our medical journals we see advertisements of laboratories to which pathological specimens, urine, sputum, etc., can be sent for examination and diagnosis. These laboratories are of eminent value to general practitioners, for there are many cases which demand the services of an expert pathologist. However, as the vast majority of cases do not demand an expert's opinion, but only a little extra work for the physician, one can readily see that if a doctor makes a habit of sending all his analyses and examinations to the laboratory he will soon be in such a position

that he could not make an analyses, even if he wanted to. A general practitioner should have his office so equipped as to be able to make for himself the ordinary analyses and examinations that occur in his daily practice. For instance, as regards,

Sputum.—He should be able (1) to differentiate the staphylococci and sheptococci, the tubercle bacillus and the diplococus pneumoneal; also (2) to recognize red blood corpuscles, leucocytes, elastic fibres, pus corpuscles and epithelia.

Blood.—(1) Make the blood count, both red and white. (2) Estimate the hæmoglobin. (3) Recognize the plasmodium materials and the filaria sanginis hominis. But when the Widal test is to be made, the blood should be sent to the laboratory; not that the physician could not make it himself if he had the typhoid culture, but because few of us have the culture, and because the laboratory has it, and is prepared for such work. To have the various stains is one thing, but to keep cultures growing is quite another, and only a laboratory properly equipped with an incubator, etc., can do so.

Next as regards the urine. Both the chemical and microscopical analysis should be made by us in our offices. Taking the 24 hours specimen, use the deposit for the microscopical examination and the supernatant fluid for the chemical analysis. By doing so we gain a knowledge of our patient's condition, such as no laboratory report can give—we see the conditions for ourselves as they exist.

In examining the urine for pathological germs, we are chiefly concerned with the tubercle bacillus and the gonococcus. The latter is easily found in the expressed secretion from the urethra, and hence there is no necessity for examining the urine. To find the tubercle bacillus in the urine is difficult, and if after repeated examinations of the washed centrifuged sediment we cannot find it, then we must appeal to the laboratory for assistance. Take a specimen of the urine and send it to the laboratory, to be injected into a

guinea pig. In due time the pig is killed and his organs examined for tubercles. As with typhoid cultures and the Widal test, so with the guinea pig and the tubercle bacillus, we have not the time or the apparatus with which to keep the cultures growing in our offices, neither have we the conveniences for keeping guinea pigs.

Fæces.—Far too little attention has been paid in the past to the examination of fæces. If we examined the fæces oftener we would soon realize the importance of such work. Oftentimes we gain information from such examinations, which we could not get elsewhere; for instance we may find segments of tape worm, a round worm, seat worm, hooklet of the tænia echinococcus and the Uncinaria Americana, or auchylistorus duoderale.

Water.—The simple tests for water can be carried out in the office, for instance the detection of hard or soft water, also wherever the chlorides are in excess. But when we want an analysis of the water to find out the amount of organic matter present or to find out if any pathological germs are in it, then we must send a sample to the laboratory. Also in case of poisoning, where the water is supposed to be the cause, then we should not undertake such an examination in our office, but submit it to the chemist.

Milk.—The purity of milk can for all ordinary purposes, be determined by using the lactometer and the creamometer; for the dilution of milk with water and extraction of cream are the tricks most practiced by the dairymen. But for milk suspected of holding infectious material or of having a preservative, such examinations should be made at the laboratory.

Stomach Contents.—From the test made and subsequent stomach washing we can gain valuable information as regards the presence, excess, or absence of free hydrochloric acid, by washing out the stomach we may detect the round worm, or possibly a piece of a tumor or some blood corpuscles. Should

the case be one of poisoning, it is wiser to send the stomach washings to an expert, and in case of an autopsy where poisoning is suspected, always send the stomach and its contents to a laboratory.

Tumors.—The examinations of tumors is not always possible in one's own laboratory. He may examine the scrapings, but when a specimen has to be hardened by freezing or with Conde's fluid before examination, then it should be sent to a pathologist. Not that the physician cannot do it himself, but because work such as that takes time and special instruments, such as a busy physician cannot give or does not have. One is only occasionally called upon to examine a tumor, so it will pay better to give the examination to one who does such work daily, than to go to the outlay of equipping the office for such work. There is and ought to be sufficient work for the expert pathologist, but a physician should be able to do the more simple work himself. By making his own examinations, he will be able to tell the condition of the patient according to his own ideas, and also impart the patient's disease to no one else—in other words, keep the patient's secret.

From a financial point, it would be the physician's gain to do his own laboratory work, and it would cost the patient less. The specialist should be paid well for his services, and for that reason only such examinations as are worthy of his fee should be sent to him.

One often claims that he is too busy to do laboratory work, and that it takes up too much time. As a matter of fact laboratory work, such as I have sketched above, takes very little time provided the physician knows how to make the tests and use the microscope. By doing our own work we would become better practitioners and our patients would be better pleased.

In conclusion, I want to reiterate what I have said, viz., learn the simpler methods of making analyses and examinations, use them in your own laboratory and send the more obscure or difficult cases to the expert pathologist and chemist.

Interstitial Keratitis and Trachoma.

BY J. H. HONNETT, M.D , WILMINGTON, N. C

A brief outline of means to recognize and treat interstitial keratitis and trachoma may be of some use to general practitioners so located that the service of a specialist is not conveniently available. These conditions are responsible for many cases of scarred cornea and other obstructions in the normally clear refractive mediæ of the eye, and are doubly sad for the fact that with simple means—those means within the reach of any practitioner they could be checked in their pernicious course, and the resulting scars and opacities lessened. Interstitial keratitis is in almost all cases a hereditary specific taint. The inflammatory deposit is deep in the substance proper of the cornea, and presents when viewed in ordinary light the so-called "ground glass" appearance. The surface is smooth in contrast to the more superficial varieties of keratitis, whch are attended by more or less ulceration. The facies of this condition is most characteristic and fairly constant, and taken with the coreal condition makes the diagnosis clear. The forehead is broad and flat, the bridge of the nose sunken, the nostrils thick and flaring and there are ridges about and on the lips. The teeth are those described by Hutchinson as peg-shaped, broader at the base than at the cutting edge and usually spoken of as notched. This notching Dr. R. G. Reese shows not to be characteristic, nor constant. It is more common during the second dentition. The patient enters the room giving evidence of intolerance to light, and there is quite often the odor of atrophic catarrh. Family history, specific disease and sequelæ. If patient be put on one of the mercurials and potass. iod. in increasing doses and the tonic regime as iod. of iron, we will be gratified by seeing the cornea clear to a great degree, leaving perhaps slight scars interfering but little with the vision. If seen during the

acute stage shown by injection of the blood vessels surrounding the cornea, atropine, 2 grains to the oz., one of water, two drops of this solution to be dropped in the eyes three times a day is advisable, and the eyes are to be bathed every two hours with water as hot as can be comfortably borne. After acute stage has passed an ointment yellow oxide of mercury is to be rubbed in the eye once daily.

Trachoma.—Trachoma, or Egyptian opthalmia, or granulated lids, as ordinarily seen, is a chronic follicular inflammation of the conjunctivial lining of the eye-lid. On everting the lids, small sago like lymphoid follicles are seen, varying in degree from a few discreet follicles to a great raspberry-like mass reaching almost to the margin of the cornea, or a membranous variety, seen in Italians.

Trachoma is said to be highly contagious, and caused by an organism not yet isolated. Important ætieological factor is undoubtedly the soil prepared by uncleanliness. Therefore, trachoma is far more frequent in the foreign districts of large cities, but occurs often enough in this and like sections to render it vastly important to check its pernicious progress. If untreated common distressing sequelæ ulceration of the cornea and pannus supervine. Pannus is a term for the formation of new blood-vessels in the superficial layers of the cornea, due to friction and pressure from the lids. If these cases so easily recognized be put in correct hygienic surroundings and the follicular surface rubbed with bichloride of mercury in a solution of 1-500 every other day and the solution of zinc sulphate, two grains to the oz., two drops to be dropped in the eyes three times daily be ordered, the follicles slowly disappear. Should the cornea already be damaged it will often improve by treating the lid. Canthotamy or slitting up of the outer angle of the lid is of value when the cornea is threatened, for it removes the pressure. Should the follicles be large and discreet, a great deal is accomplished by scarrifying the surface with an ordinary scalpel. Squeezing out

of the follicles with forceps specially devised for this purpose is invariably followed by benefit. One of the oldest and best authorities and others apply the blue stone pencil to the follicle. Dr. Reese points out that this is followed by scarred tissue in contrast to the perfect results when bichloride is used. Silver nitrate has been used, but too much discoloration resulted. In conclusion, I repeat, that while trachoma is not of the vast importance in the smaller towns and country as in the great congested cities, cases spring up here and there where sight itself may be saved by the simplest measures.

Uncinariasis in the Mountains of North Carolina.

BY W. P. IVEY, M.D. LENOIR, N. C., MEMBER N. C. BOARD OF HEALTH.

'Tis true that history repeats itself. The importance of the different varieties of human entozoa in the production of disease was for a long time overestimated. In the days of our grandfathers, it was believed by doctors, as well as laity, that in children at least, they universally existed; that many serious troubles were caused by their presence, and that their eradication was the preliminary step in all successful treatment. Then came a period when doctors did not attach any great importance to intestinal parasites. I have belonged to this later period, and it has been the rarest thing for me to prescribe an anthelmintic, except to placate a solicitious mother or grandmother. To-day again one intestinal parasite at least is forcing its importance upon us, and I am pressed into service in making this phenomenal leap from indifference to enthusiasm. To me, gentlemen, one of the most surprising happenings in my professional career is that I, in this year of grace, nineteen hundred and four, should be reading before the North Carolina State Medical Society a paper on worms. But such is the case, and my only apology is "that times change and men change with them." I have used the word worms advisedly. The subject of intestinal parasites has in the past, wittingly or unwittingly, been turned over to quacks and charlatans. The subject of uncinariasis is to my mind of too much importance to be taken possession of by the same gentry, and we must be on our guard to prevent it. It exists most largely among a class of people, whom it is going to be a hard matter, at least, to convince that it is a matter of any consequence. In order to give proper dignity and importance to the disease, I think we should be careful to invariably use the technical name and avoid the term hookworm or hookworm disease. By inattention we

will fail to impress upon the laity the importance of the disease and its treatment will fall away from the physician into the hands of sharpers, and we will soon see advertised and on sale Smith's Hookworm Lozenges, Hamilton's Hookworm Harvester, and so on and so forth. I do not propose to go into the consideration of Uncinariasis at length. Dr. Stiles has published a report on it and has touched fully upon every feature of it. Those of you who haven't that report I would advise to get it from the Marine Hospital service at Washington. He has studied it as a zoologist. What I shall have to say about it will be from the standpoint of a clinician and sanitarian.

After hearing with much interest Stiles' paper at Hot Springs a year ago, I was satisfied that there was such a disease in my locality, and awaited developments. A case soon presented itself in the person of a five-year-old girl. The prominent symptoms were anæmia, œdema, severe headache, and pain in the stomach, and were of such gravity as to cause the parents much uneasiness and to hunt the doctor. Stiles took the train and hunted up his cases. There are hundreds of cases in North Carolina that will not need to be hunted. They will hunt for us. One fact that led me to suspect Uncinariasis in this case was that I had treated an older brother of hers for anæmia a year previous. I asked for a specimen of the faeces, which was reported by McCarthy to contain the ova of the Uncinaria Americana. The color of the faeces in this case attracted my attention and would have established the diagnosis without the aid of the microscope. It was decidedly reddish, showing plainly the presence of blood. In no other case since, have I seen that pronounced reddish color of the discharges. Having established the diagnosis I gave the Thymol treatment and found plenty of small thread-like creatures, but never having seen uncinarias, I was not certain that I had what I was looking for. They correspond in length only with Stiles' description. If

I were to describe the creature as to length, I would say that the Uncinaria Americana is a parasite, that is eighteen letters long and three-quarters of an inch short. My uncertainty lay in the fact that my find would not tally in size with Stiles' description as being the size of a hat-pin. I think a more correct description of their size would be the size of a No. 10 thread. In order to be certain of what I had I sent some of the specimens to Dr. Stiles, who promptly reported that they were the genuine article.

About this time a case was brought to me for treatment, the urgent symptoms being an inability to sleep in the recumbent position. It was a six-year-old girl, stunted, sallow, and so completely waterlogged that she could scarcely breathe. I did not take time to make a test for uncinariae by the microscope, as I had previously discovered them in an older sister. There are six children in this family, and all of them, together with their parents are probably in the same boat. I mention this case to call attention to the prompt results of treatment. The child had not lain down to sleep for some time. The very next night after the Thymol treatment, she was much improved, and the second night slept naturally as well as usual. Following this up with iron and arsenic, she was soon perfectly well.

In looking up probable cases of uncinariasis, I remembered a girl to whom I had given iron several times years ago. I went to her mother and, telling her what I suspected, inquired after her daughter's health. She said it was good, and that she had not had any trouble since I had treated her five years ago. I called for the girl and found her to all appearances a victim of uncinariasis. She was undergrown, pale and peaked, but had no complaint that would call for treatment. I obtained a sample of faeces, and in fixing it up to send away for examination, I discovered, without looking for them, the mature uncinariæ. It was of no use to send that sample away. Like Mr. Goat in the convention of

animals, it had "done already voted." This girl was 13 years of age and had uncinarias for five years without any impairment of health to attract the mother's attention. In three years more of time, however, that girl, when the time for menstruation comes on and she begins to do manual labor (for she belongs to the working class), will need medical attention, and will need it for a long time, if the doctor should happen not to be posted on uncinariasis.

Only last month I was called ten miles in the country to see in consultation a patient in a family in which I had practiced some years ago. The trouble was uncinariasis, and the physician had recognized it and had given the proper treatment. He had been able to recognize it, because he had been present at a clinic I had held before our county medical society on the subject last fall. And here let me say, that this is the very best way to stir up interest in the subject among country physicians, who do not attend meetings like this. It would be well for some one to hold such a clinic before every county society in this State. I mention this case especially to note that there is a lethality attached to the disease, for the boy died a short time afterwards. He had one very unusual symptom, it being a femoral phlebitis with a very large, tender and painful leg. While in the house, a girl was called in for me to see and I found in her a former patient, whom I had periodically loaded up with Blaud's pills. She was a pretty girl, but her face was like wax. Of course her trouble was uncinariasis and the way was perfectly clear to put roses into her cheeks. That was a large family of children, and all are probably infected, but only those two to the extent of producing disease.

Another family of three children I recall as calling upon me often for Blaud's pills; in fact, they had stated to me, that they could not get along without them, that they were as necessary as bread. On examination I found all of them with uncinariasis. As a rule I haven't gotten a very large number of uncinariæ from the cases in which I have used

treatment, but from each one of this family large numbers were obtained, one of them estimating the number as four or five hundred. A neighboring family to this, consisting of seven members, had always looked to me to be in bad health. One of them I tested for uncinariasis with positive results, and the reasonable conclusion is that the others have the same trouble. These people live on a little mountain stream, are very poor, and I believe that most of the people living in that valley have uncinariasis. Several other cases in different neighborhoods I have tested with positive results, but no individual mention of these cases is necessary except to give the number. Up to this time I have examined 20 suspected cases and found the disease in every case. Not a single examination has been negative. This experience conclusively proved to me that uncinariasis was very common, so common, in fact, that I began to have a lurking suspicion that possibly I might have the thing myself, and if I, why not my next door neighbor and my fellow-citizen around the corner. To my mind, just at that time, there was danger that dyspepsia might lose to uncinariasis the proud distinction of being the great American disease. Having had uninterrupted success in finding cases with uncinariasis I concluded to change tactics and look for some one without it. I proposed to take and test a few cases from my practice in whom I have no reason to suspect the disease. This investigation, for lack of time, has not proceeded far enough to be of any value.

These twenty cases actually demonstrated in different sections of the country, with a probable twenty more cases in the same families, and all these from among the patrons of only one physician, show the disease to be a common one in Caldwell county. This county is not a sand district. It is right in the mountains, with a clay soil, with here and there a mixture of sand and clay on a clay subsoil. While I can not speak authoritatively of other counties in Western North Carolina, I am not going to admit that Caldwell county is

the only wormy county in the State. The condition there is only a fair sample of what will be found in other counties in the west, and as for that mater, over the entire State. That it is confined to sandy districts, as Stiles concludes, I don't think will be proven by more general investigation. I think he reached this conclusion because he did not carry on any investigations in the mountain districts. The reported cases and published maps do not mean that it does not exist elsewhere.

The discovery of this parasite as the cause of disease will clear up for many of us cases that we have not heretofore understood. Review with me, if you please, a few such cases. In my early practice I was associated in partnership with an older physician, for whose professional ability I and every one had the profoundest respect. He had a case of anæmia with general anasarca. He made a diagnosis of valvular disease of the heart and gave the boy up to die. Another neighboring physician for whose professional ability we had no respect, was called in, fixed up a lot of two-penny nails and vinegar and the boy went right on to recovery. That case in the light of present knowledge was uncinariasis. Now valvular disease of the heart may and does occur in uncinariasis, just in the same way that phlebitis occurred in the case I mentioned. But one of the most common complaints for which these patients will seek our aid is a supposed heart disease. Next to cardiac symptoms in frequency, we will encounter disorders of menstruation, in some cases amenorrhœa, in others menorrhagia. Only this month I saw a nineteen year-old girl with proven uncinariasis, who had menorrhagia for a month. All of these cases of uncinariasis, except the worst cases, can be much benefited by treatment for anæmia, without the specific parasite treatment, but the benefit, of course, is not lasting, being the result of symptom treatment only.

Two years ago I saw in the country a child, who was pale and dropsical. I asked for a sample of urine, which I

found loaded with albumen. My diagnosis was nephritis and a few weeks treatment with Basham's Mixture cleared the urine of albumen, relieved the waterlog and dispersed the pallor. Later in the summer I went through the same experience with an older brother, and the next summer had the identical experience with both of them. Both of these children had uncinariasis, for I have since examined them for it, and unmistakably found it. I also found it in the mother, and natural supposition is that the other children are similarly affected. Within the past few months I have gone through the same experience, mistaken diagnosis and all, with two other children in different parts of the county. To-day, were I to see them, I would in short order make a diagnosis of uncinariasis and would supplement the treatment used with a few doses of Thymol.

Two years ago I went ten miles in the country to a woman in eclampsia. She was in the last weeks of pregnancy, was very sallow and dangerously waterlogged and altogether it was a most unpromising and discouraging case. My diagnosis was albuminuria of pregnancy. With the usual treatment she soon miscarried and recovered. I take the liberty now of changing that diagnosis. It was uncinariasis. How do I know? Well, because I saw her again three weeks ago. She was in the early months of pregnancy; her urine was not albuminous, but her appearance clearly indicated the disease and her fæces according to McCarthy contained in abundance the ova of Uncinaria Americana. I propose with Thymol to make it my business to jugulate any such ordeal as we went through two years ago.

Ten years ago I saw a grown woman, who was in articulo mortis, when I first saw her. My diagnosis, as best I could make it, was valvular disease of the heart. To-day, if I should see that case, I would in all probability call it uncinariasis, for she was one of a family of children, in all of whom I have established such a diagnosis. Three other children of this family died during childhood. They were,

according to the father, puny in the same way as the others and probably died of uncinariasis.

Sometime ago I was treating a bloated, anæmic five-year-old boy. Before he had time to show any improvement he contracted pneumonia, to which he rapidly succumbed. This case, in the light of subsequent developments, was uncinariasis, and but for that he would not have died from the pneumonia. Uncinariasis undoubtedly undermines the resistive power to disease and just as certainly increases directly and indirectly the mortality rate.

I know of no disease of like importance, that is so quickly and certainly relieved by treatment as is the disease we are considering, but I must confess that I am disappointed as to the permanency of results. Two of my cases first treated I tested for reinfection six months after treatment and found both of them reinfected. One of them showed marked clinical symptoms, the other, according to the mother, was perfectly well. Each of these cases was treated with full doses of Thymol three times till no uncinariæ showed up in the discharges. It will be profitable for some one with a microscope to take a case and test it systematically at intervals for reinfection. My present view is that most of the cases, especially among children, ought to be given a course of Thymol at least every three months. There must be a preventive as well as a curative treatment.

Hear, gentlemen, my conclusion.

Uncinariasis is among us.

It is among us abundantly.

It is a grievous burden to its host.

It is a menace to the neighbors.

It kills folks.

It makes mental underlings.

It makes physical dwarfs.

It curtails producing power.

It steals dollars from our wealth.

What are you going to do about it?

Uncinariasis as Seen in Eastern North Carolina.

BY J. L. NICHOLSON, M.D., RICHLAND, N. C.

Less than two years ago it was claimed from evidence then known that unciniariasis was within all probability a disease of rare occurrence in the United States. Recent data, however, have greatly modified this impression, and forcibly bear out the belief of Dr. Wardell Stiles, of the Zoological department at Washington, that hook-worm disease is widely prevalent in America, especially among the poorer whites of the sand and pine woods districts of the South.

Judging from my own limited experiences covering a period of nine months, I have little hesitation in saying that this disease is inflicting more injury upon the young people of Onslow, Jones and Duplin counties in the way of real suffering, delayed and inferior physical development and lowered mental calibre than all other serious chronic ailments combined. Nor is this all. It seems to be responsible for more poverty and want of thrift among our tenant class of white farmers than any other factor in the whole catalogue of human afflictions. By far the greater number of ill-nourished, anaemic, poverty-stricken families in our midst are victims to long years of the ravages of this parasite. Could you behold the sad condition of hundreds of children, even whole families (fathers and mothers included) within my clientele, resulting evidently from this great yellow plague, you would not hesitate to agree with me. I will venture the assertion that within a radius of 12 miles of my office one or more members of three-fifths of the white families who farm for a livelihood are afflicted with this disease.

It is not my purpose to attempt to write an exhaustive paper. I shall only give you a few facts as they appear from the first 90 cases investigated.

These 90 patients have been found in 39 white families

which show a membership of 280 persons, or 32 per cent of infection. In addition to this 71 members, 26 per cent of these families, show such clinical evidence as make them cases of suspected infection.

Age of patients at time of diagnosis:

Youngest, 2 years and 4 months; oldest, 57 years.

Number under 5 years of age,						8
Number between	5	and	10	years,		17
" "	10	"	15	"		22
" "	15	"	20	"		21
" "	20	"	25	"		9
" "	25	"	30	"		5
" "	30	"	35	"		6
" "	35	"	40	"		0
" "	40	"	50	"		1
" "	50	"	60	"		1
						90

Further analysis as seen from clinical history shows an average age *at time of* infection to be 7 years and 6 months. Youngest patient found at *onset* of disease was one year and six months, the oldest 18 years. Between the ages of 3 and 10 years 73 per cent became infected. Between the ages of 10 and 15 years 17 per cent became infected. Between the ages of 15 and 18 years 10 per cent became infected. Not one case yet diagnosed whose history of infection did not ante-date adult life.

These data seem to point strongly to the idea that, to us in Eastern North Carolina, uncinariasis has its beginning in early life. To my mind this is a very significant fact, and points strongly to the chief avenue of infection.

Sex.—Of these 90 cases 53 are males, or 59 per cent, and 37 are females, or 41 per cent.

Soil.—The soil upon which these 39 infected families live is in 24 instances rather compact, dark gray sand closely

underlaid with clay. In 6 cases the same character of soil closely underlaid with "quicksand", and in the remaining 9 the soil is of a loose, fine loamy order with clay several feet below the surface. These conditions tend to demonstrate that the statement of Stiles and others that a sandy soil is most conducive to the growth of the parasite is but half the truth. A sandy soil with a subsoil of that nature which prevents the rapid sinking of the soil moisture furnishes an ideal condition for its life outside the human body. For at least two reasons this may be true:

1st. Absence of moisture invariably results in the rapid death of the parasite.

2nd. *Ground-itch* which, according to Bently, is an important factor in the causation of the disease, is much more prevalent where a damp, muddy soil exists than upon a loose, loamy, or coarse sandy soil from which all surplus water rapidly evaporates or easily sinks into lower strata.

Location of the homes of the 90 patients:

In northwestern section of Onslow county, 3 cases.

In eastern section of Onslow county, 5 cases.

In west section of Onslow county, 5 cases.

In southern section of Jones county, 24 cases.

Lenoir county, 1 case.

Craven county, 1 case.

Pender county, 1 case.

Duplin county, 10 cases.

This evidence points to its widespread existence in the counties of Eastern North Carolina.

Almost every country practitioner of the Eastern Carolina sees every year numerous cases of anaemia and many of them, especially among the young, of the profound type. These are often classed as malarial cochexia. Hitherto such cases have received a routine treatment with iron, quinine and arsenic with only slight temporary improvement. Now a trial dose of thymol (if you are without a miscroscope) will

make clear the diagnosis and bring positive results to the patient.

Sleep.—With 53 of my patients sleep is excessive, though of restless order, the patient often changing his position in bed and troubled with unpleasant dreams, eight of them having the habit of talking and grunting in their sleep and four of walking in sleep. Five claim to be poor sleepers. Twenty-five sleep fairly well, the greater number of whom are patients of low infection.

Shoes.—At time of onset of the disease, and as a rule for several years later, not one wore shoes through the summer season.

Drinking Water.—In every instance surface wells, varying in depth from 10 to 20 feet, are the source of supply for drinking water. Majority of patients confess to have drunk water from creeks, ditches and other questionable places at different times of their life. We have not been much impressed with the idea that drinking water plays much part in the spread of this contagion.

In the first place, while the parasite is said to have the ability to live for an indefinite period in water, they invariably sink to the bottom, and are therefore not liable to be taken out with the water used for drinking purposes.

2nd. If the statements of my patients can be taken as facts, 73 per cent of them become infected before the age of 10 years had been reached, a circumstance tending to disprove the idea that the careless custom among farm laborers of drinking creek and ditch water may account fo their infection.

3rd. The greater number of the infected families under observation are of the tender class and to my personal knowledge change homes every few years. Such changes, fortunately, are made at close of the year when the frost of winter have destroyed all soil infection, leaving the *surface well* as the only source of danger to their successors. Investiga-

tion thus far has failed to show any spread of the disease to the second family in consequence of the use of the "supposed" infected drinking water.

Family Disease.—Uncinariasis seems to be particularly a *family* disease, twelve families affording 51 of the 90 cases under consideration. Not only this, but it seems to be a *family* disease in many instances even unto the third and fourth generations.

To illustrate: Old Mrs.C...., aged 75 years. Her life history, as well as her appearance for the last 30 years, point unmistakably to protracted hook-worm disease. Her son C. G. C., aged 49 (case 16), has been my patient for the greater part of his life. Anæmia, hemic murmur, oedema of face, dyspnoea, colicky pains in abdomen, were his symptoms 30 years ago. At no time since has he been free from one or more of these symptoms. Microscopic investigation proves his infection at this time. His wife, once a fine specimen of health, and six of their seven children are now heavily poisoned, the only one escaping being a one-year-old babe.

Two other sons of old Mrs. C. as I have known them from early life to the present afford typical pictures of the same condition.

Mrs. B., the daughter of old Mrs. C., and now the mother of eleven children, affords no less proof of early life infection. The disease found affecting seven of her children and two grandchildren serves further to illustrate its persistence as a *family* affliction.

Half dozen other families of equally far reaching infection might be related.

Appetite.—Normal in 15 cases; poor in 13 cases; irregular in 16 cases; ravenous in 35 cases.

Besides the ordinary diet of "hog and hominy," 14 patients eat clay; 5 patients eat parched coffee; 1 patient eats raw rice; 1 patient eats raw starch; 1 patient eats raw meal; 1

patient eats raw flour; 6 chews sticks; 5 shews rags; 1 chews strings; 1 chews oak bark; 6 chews paper; 1 chews lint cotton.

Place of stool deposit: Not 6 per cent of these patients use a privy. At night "the back yard," some nearby fence corner, the horse lot are the usual selections for quite 90 per cent of them: and with small children, both day and night, there is no place so universally used as around the corner of some house, in the back yard—not infrequently this is the corner of the dwelling house itself. To this filthy and revolting practice may be attributed in large measure the widespread existence of the malady among such people.

Character of Stools.—Dark brown in 80 per cent; reddish brown in 6 per cent; light brown in 14 per cent; hard in 78 per cent; soft in 22 per cent.

Duration of Attacks.—The clinical history of these cases shows an average of 9 1-6 years of sickness to each patient, or a sum total of 825 years of injured health to one person.

Onset of the Disease.—In 46 cases it began in spring or summer. In 14 cases in early fall. In 29 no information could be had. During spring and summer decline in health seems to be the invariable rule. As cold weather approaches slow improvement sets in and continues through the winter.

Degree of Infection.—Forty cases of very heavy and serious infection have been recorded. From this class 450 to some more than 1000 worms have been expelled under treatment. Twenty-four cases of moderate infection with symptoms of less gravity have been treated and surrendered from 75 to 150 parasites. Twenty-six cases of low order of infection showed the presence of from 2 to 50 worms. I would not be understood as claiming that the clinical picture presented in each case can be taken as an index to the number of worms infesting the patient's intestine, for the duration of disease has an important bearing as well upon the patient's condition.

In many cases of several years standing in the early part

of life the lack of physical development is very striking. Later in life as the degree of infection decreases, or recovery is complete, much of this systematic deficiency seems to be overcome.

A few cases will illustrate the first proposition.

E. C. H., aged 16 (case 13, infected 10 years. Weight, 75.

J. T., aged 21 (case 37), infected 15 years. Weight, 84.

J. G., aged 19 (case 66), infected since childhood. Weight, 84.

C. T., aged 17 (case 39), infected since childhood. Weight, 61.

Other diseases found present during the course of uncinariasis, which in some instances are its symptoms, viz:

Occasional attacks of abdominal colic, varying much in severity, present in 64 cases.

Occasional attacks of diarrhoea present in 39 cases.

Occasional attacks of fevers present in 21 cases.

Occasional attacks of headache present in 18 cases.

Occasional attacks of acid stomach present in 10 cases.

Chronic ulcer of the leg present in 4 cases.

Rheumatism present in 3 cases.

Cramps in lower limbs present in 5 cases.

Asthma present in 1 case.

Mad itch present in 1 case.

Epilepsy present in 2 cases.

Recurrent appendicitis present in 1 case.

The complication of two cases of epilepsy and one case of appendicitis with uncinariasis is interesting and reserves further observation. The large number of attacks of slight recurrent fever is very suggestive of cause and effect. Several patients positively date the beginning of their present condition from an attack of fever of several days duration.

Ground Itch.—Eighty-nine patients give history of from one to a dozen attacks of ground itch. In 62 patients the attacks were very severe. With 69 the first attack of ground itch is said to have preceded the symptoms of hook-worm infection. Five of these became affected in summer of 1903, and very positively date the beginning of their pallor, oedema and dyspnoea from a protracted attack of ground itch.

N. J., aged 2 years 4 months (case 85), gives no history of ground itch in usual form. In July, 1903, when but 17 months old, was permitted to sit upon damp ground where several children known to be hook-worm cases often played. An attack of "mad-itch" upon buttocks and legs resulted. By the late summer the child gave every evidence of hook-worm infection.

I feel no hesitation in expressing the belief that ground-itch is the one great causative agent in the spread of this plague.

Looss claims to have proven that the larvæ may find entraced to the body through the epidermis. Bently, experimenting on this line, strongly insists that ground itch is but the invasion of the parasite into or under the skin. Dr. Smith, of Atlanta, who has had much experience with the disease, claims to have found "that every person examined who has had an attack of ground itch within a period of 7 or 8 years has the uncinaria in his intestines."

As further evidence of the accuracy of the ground itch theory, we have found:

1st. Uncinariasis has its beginning generally in very early life.

2nd. The soil upon which the greater number of my patients live is especially suited to the propagation of ground itch.

3rd. Eighty-nine of my patients have suffered repeated attacks of the malady.

4th. The period of beginning improvement in uncinariasis

in all my adult patients closely corresponds to the time when they no longer went without shoes in summer.

Temperature.—In 41 patients, ranging in age from 3 to 20 years, and being infected probably from few months to several years, the temperature varied from 98 3-5 to 100½ degrees, making average temperature of 99.4 degrees F. In 6 other young patients who were found heavily infected with both the hook-worm and the round worm, the body heat was slightly sub-normal in each case, making an average temperature of only 98. These observations are interesting and were not carelessly made. In many cases repeated tests with different thermometers were made and the above statements were verified.

In 8 patients whose ages ranged from 25 to 50, and whose infection was of long standing but low in intensity, the average temperature was found to be 98 F. I know that it is a matter of common observation that body heat is slightly above the normal in cases of anaemia, whatever its causes may be. But why this extra temperature of one degree in 41 cases with uncinariasis, while 6 cases of similar infection and intensity and age show a range of temperature averaging 1½ degrees less, even ½ degree below normal when round worms are present?

Another observation of much interest: 16 cases give evidence of repeated outbursts of fever. In some cases this phenomenon occurs at irregular intervals. In others, at regular periods, preceded by chills through the whole winter. No plan of treatment for malaria has been effective. Are these attacks of malarial origin? I have made no microscopic tests to determine the matter. Those of them who have parted with few hundred uncinaria with no malarial treatment accompanying the process, assure me these fever attacks have ceased. Four other cases of recent origin and of heavy infection very positively date their pallor, oedema and dyspnoea from a long attack of fever.

Blood.—The few blood examinations that I have made show deficient haemoglobin to be an important change in cases of severe gravity. The diminution of red blood corpuscles in serious cases is very striking.

A. T. (case 39), age 13, Hb. 16 per cent, R-Blood C. 1,670,000.

J. T. (case 66), age 16, Hb. 10 per cent, R-Blood C. 1,110,000.

J. T. (case 66), age 19, Hb. 10 per cent, R-Blood C. 1,400,000.

M. J., age 19, Hb. 10 per cent.

Spleen and Liver.—In quite 40 per cent of my cases the examinations of the *spleen* and *liver* gave negative results. In one instance the spleen was enormously enlarged. In only 4 others slightlyso. In 8 cases only was the liver found slightly enlarged and tender.

Urine.—As far as tested gives nothing but negative results.

Circulatory System.—The symptoms generally present are those seen in all cases of anaemia. Cervical pulsations, haemic murmur, irregular action of the heart with palpitation in some, and in a few others a prolonged and accentuated first sound.

Oedema.—I know of no symptom so universally common, certainly among the young, *as oedema of the face.* A bloat beginning well upon each side of the nose and extending in fan shape outward across the center of the face is a condition invariably present, so far as my observations go.

Finding this middle face oedema, together with a facial pallor, and a history of occasional attacks of abdominal pain (let these symptoms be ever so light) I have not in a single instance failed to find a case of uncinariasis. This statement refers especially to patients less than 20 years of age.

With patients of 30 years and more who have carried the parasite for a long time and show now only low infection, the facial expression is altogether different. In these we

may have not only the entire absence of oedema, but quite to the contrary we find a thin, emaciated and unduly furrowed condition of the lower half of the face—a face which would indicate that your patient is several years older than the age he gives you. From the slightest bloat of the face to the most prominent and distressing anasarca will vary in different patients or in different degrees of infection in the same patient.

Respiration.—One of the most common symptoms present is dyspnoea, especially prominent during exercise or sudden exertion. In a good many of my cases this symptom was so distressing as to entirely prevent all except the slowest and most limited locomotion, such patients being unable to walk faster or further than a child just beginning to take his first steps in life.

Diagnosis.—While these symptoms will lead one to a correct conclusion as a rule, *microscopic* examination of the feces is the proper way of making a *certain diagnosis.* The ova found in great numbers in a fresh specimen of feces are characteristic and can leave no doubt as to diagnosis. Through the kindness of my friend, Dr. W. S. Rankin, of Wake Forest College, the great majority of my cases were investigated microscopically before treatment was begun. In good many of my most urgent cases, with rational symptoms strongly characteristic and prominent, I have made diagnosis with trial dose of thymol, in every case but two getting scores of parasites. These two cases were quite misleading from the fact of pregnancy existing in both instances, which doubtless produced the symptoms which I mistook for those of uncinariasis.

Treatment.—The disease, certainly in its early history, is curable if treated properly. As an anthelmintic to cause the expulsion of the parasite, thymol has almost entirely displaced all other remedies. The most common method in its administration with me has been that laid down by *Sandwith.* The patient is given a purgative the day before, at the same time

placed on a liquid diet for supper and breakfast following the purgative and preceding the thymol. To an adult 30 grs. of thymol in capsule are administered at an early hour of the second day and followed by a similar dose two hours later, this to be followed in two hours by a full dose of epsom salts. To my mind the treatment of *fasting* and *thorough* purgation on first day is a point of the highest importance. In 6 cases in one family this part of the treatment was overlooked or purposely neglected by the father, and the results in every case after four weeks thymol treatment were of but little benefit. Microscopic tests made two weeks after the fourth treatment thus partially carried out showed that my patients were still heavily infected. Another four weeks treatment with the proper observance of the direction to purge and use nothing but liquid diet for three meals resulted in the expulsion of more than 2,500 hook-worms and a steady and marked improvement in the six patients. Dr. Rankin's experience in the treatment of some 28 or 30 cases of mild infection is in thorough harmony with my experience. In a recent letter to me he lays special stress upon the necessity of preliminary purgation and fasting. The more thoroughly the bowels are cleared of all fecal matter in the beginning, the more effective will be the work of the anthelmintic. While the fact that thymol is poisonous must not be lost sight of, still the greater the quantity your patient can tolerate at once the more effective will be your treatment. The nearer to a saturation of the liquid contents of bowels with the remedy, the more certain will be your chance of curing your patient in a short time.

I am in the habit of beginning treatment with 60 grs. thymol divided in two doses for an adult. Even 80 grains have been given in few instance and with no untoward effect. A slight giddy, drunken feeling with some disposition to stagger in walking and occasionally little nausea are effects frequently complained of. All of these pass off. Directions to hasten the administration of salts in case such symptoms

much aggravated are always enjoined. This rapidly dissipates these unpleasant symptoms.

In two children, aged 10 and 12 years respectively, one 10 gr. capsule of thymol was ordered to be taken hourly for three doses. Unmindful of directions, the dosage was continued until 50 grs. had been administered in 5 hours. The effect in both cases was an alarming collapse. After hurried bowel action by the use of anaema and salts consciousness was regained and soon the little patients were entirely themselves, less "a teaspoonful of hook-worms" (to use the patients statement). The dosage laid down by Sandwith has proven thus far with me entirely safe. Malefern, acetezone, sulphur, santomie, etc., have been tried in few instances, giving almost negative results.

Prevention.—The question of prevention is one of the highest importance. Every precaution should be taken to prevent the contraction of ground itch. To this end, shoes must be worn during the damp weather of summer; the premises must be properly drained; cleanly habits must be inculcated, e. g., handwashing before taking food; stop the use of "back yard" as privy. Special care must be taken to keep pure the water supply and to dispose of all human excreta either by disinfection or by frequent burial.

Uncinariasis in North Carolina, its Frequency and Etiology.

BY W. S. RANKIN, M.D., WAKE FOREST COLLEGE, N. C

Mr. President and Gentlemen of the North Carolina Medical Association:

The limited time at my disposal makes it necessary for me to leave unread a large portion of my paper. In choosing what I most desired to bring before you, I decided to read only that part of the paper that relates to frequency and etiology. I have done this because, if there is anything original in the paper, it may be included in one or the other of the above sub-divisions of the subject, while the rest of the paper is simply a resume of the previous literature.

Frequency.—You will agree with me when I say that the *importance* of uncinariasis will depend upon two facts; first, its frequency, and second, its pathological significance. One aim and one claim ofthisarticleis to establish the first fact, viz: its frequency.

In June, 1903, while Resident Pathologist to the University of Maryland Hospital, a case was sent up from the dispensary with a diagnosis of malaria. The resident in charge of the ward failed to confirm the diagnosis with a blood examination, although clinically the diagnosis would not have been questioned. A widal was negative. At this juncture the case was becoming interesting from a diagnostic point of view. I made a differential leucocyte count and found an eosinophilia of 11 per cent. In the absence of skin eruption and asthmatic trouble, of course, the stool examination was clearly indicated. This was done by Dr. Wm. T. Mesarck and myself, with an easy diagnosis of uncinariasis, a diagnosis, which Dr. Stiles kindly confirmed for us.

Having become interested in the disease, I collected most of the English literature on the subject. On reading this, I was impressed, first with recent discovery of a disease,

which the evidence at hand proved had been so long present with us; second, the unanimous claim by investigators that it was one of the *most* prevalent of all the diseases of the South, and thirdly, the contradiction of this claim as manifested by the small number of cases reported and the scanty literature.

The question, then, assuming two sides, at once became inviting to investigation. Hear some of the evidence in favor of its importance:

Dr. Stiles says: "There is, in fact, not the slightest room for doubt that uncinariasis is one of the most important diseases of this part of the South. * * * In frequency it belongs in the general class with tuberculosis, malaria, and gonorrhoea." He was writing from South Carolina.

Dr. H. F. Harris, of Atlanta, says: "The most common of the severe diseases of the South."

Dr. Bailey N. Ashford, Assistant Surgeon United States Army in Porto Rico, writes: "The disease is the most destructive and general disease of Porto Rico."

Now add to this the unqualified endorsement of every single investigator, and you have one side of the question. And mind you, this evidence comes from the investigator, the advance guard of our medical army. Now, on the other hand, we have the recognition of the first case in America in 1893, only seven cases to January, 1900, reported, only fifty-one cases could be collected from literature of this country in January, 1903, by Dr. Capps, of Chicago, and now there has been reported, all told, between one hundred and fifty and a hundred and seventy-five cases. These claims and this small number of cases stand directly opposed to one another. An adjustment is needed.

In July, 1903, I located in Jacksonville, Onslow county, North Carolina, and my observations there and conversation on this subject with Drs. Cox and Nicholson, of this county, at once reawakened interest in this disease, and abundantly

confirmed the observations of Stiles, Harris, Ashford, and others.

Being convinced through conversation and correspondence with other doctors that the importance of the disease was not properly appreciated, I at once decided to collect such evidence as I could to prove its frequency. This work was much facilitated when I was called to the chair of pathology at Wake Forest College in September, 1903.

In order to study the frequency, I made the following proposition to the State Board of Health: To travel certain counties, scattered in different sections of the State, to see every doctor in the county, and to examine all suspected stools, which he had collected, provided the Board of Health pay my expenses. I offered one months' time and to furnish my own microscope and other apparatus. This offer was accepted. Dr. Lewis at once had issued a number of letters, acquainting the doctors with our aims, and asking them to collect specimens. This letter, with a personal letter stating the time of my arrival at the doctor's office, I mailed to the doctors I intended to visit, about ten days before I reached their office.

A weeks' canvass through Northampton and Edgecombe counties in the latter part of December proved very discouraging. In the whole weeks work only four cases were found. Many doctors had not collected a single specimen, and none had more than two specimens.

Reaching Wake Forest, I decided upon another plan of investigation, viz: to examine stools of students from various counties. This last plan of work was surprisingly successful in furnishing evidence as to the frequency, and also distribution of hook-worm disease.

By these two methods of investigation, I have succeeded in collecting 147 cases of uncinariasis, about as many as the total number up to this time reported in American literature. In order that you may have a standard of comparison let us see something of its prevalence in other countries.

Since Dubini discovered the parasite causing the disease in 1843, it has been found so widely distributed that it is very probable that the disease is endemic the world over between the parallels 51 and 31 deg. North and 30 deg. South.

In Egypt it is found in nearly every cadaver. So frequent is it here, that the disease is called Egyptian chlorosis.

In India, Manson states that in certain sections 75 per cent are infected.

In Madras 52 per cent are infected.

In Kiolo, Japan, 13 per cent are infected.

In Java, Ceylon, the Straits Settlement, and on this continent in Brazil and Guinea it seems equally prevalent. In Porto Rico last year one-fourth the death rate was due to an enemia produced by this parasite. Out of 25,552 deaths, 5,678 were due to anemia. The government of the Island has recently appropriated $5,000 to the study of this plague.

Now let us look at its frequency and distribution in the United States.

The first case was recognized by Blickhahn in 1893, in St. Louis.

But the interest of the profession was not aroused until Stiles brought the results of his painstaking investigation to their attention in 1902.

Of course it has not yet been sufficiently studied to allow more than approximate conclusion, but we can say now that *the more the disease is studied the greater does this frequency appear.*

The writer on this affection in Allbutt's System of Medicine correctly states that, "To diagnose the disease you only have to suspect its presence."

But now let us see its distribution in the United States.

New York: Nine cases reported, all of which were probably imported. Seven surely imported.

Pennsylvania: Three cases, all of which were imported.

Maryland: Four cases, all imported.

South Carolina: Stiles, on his tour of investigation, reports sixty or seventy cases.

Virginia: Three cases, all American type.

Georgia: Harris reports thirteen cases, and Claude A. Smith has seen so many cases that he has ceased to record them. Besides these Stiles found the disease very prevalent here.

Florida: Dr. Stiles states that Florida does not differ from Georgia in point of prevalence.

Alabama: Dr. Bondurant reports fifty cases, and Dr. Harrison three cases.

Louisiana: One case reported.

Texas: Dr. Allen J. Smith in examining stools of eighty-six medical students found eight infected. Three other cases are recorded from this State.

California: Fifteen cases. All imported from Mexico and P. I.

Missouri: Two cases, one of which was imported.

Indiana: Three cases, one American type.

North Carolina: When I began this investigation there were reported from this State only the two cases seen by Dr. Stiles on his Southern tour of investigation in 1902. To-day I report 147 cases—more than nearly all the States combined have on record. These cases were found by one or the other plans of investigation. The work among the students is most interesting and valuable for its bearing on the distribution of the disease in our State. The results among these students are truly surprising, almost beyond my conception. In about 140 examination 53 cases were found or 37 per cent of those examined. I will here state that the students were not "picked cases," only eastern counties were usually chosen. When a county was chosen every student from that county was examined. Here are results according to counties. Some counties show every student infected.

Sampson county, six men in college, all infected, 100 per cent.

Pender county, three men in college, all infected, 100 per cent.

Iredell county, four men in college, all infected, 100 per cent.

Columbus county, two men in college, all infected, 100 per cent.

Cumberland county, one man in college, is infected, 100 per cent.

Chowan county, one man in college, is infected, 100 per cent.

Pasquotank county, one man in college, is infected, 100 per cent.

Washington county, one man in college, is infected, 100 per cent.

Wilkes county, one man in college, is infected, 100 per cent.

Perquimans county, one man in college, is infected, 100 per cent.

Northampton county, one man in Wake Forest, is infected, 100 per cent.

Bladen county, one man in college, is infected, 100 per cent.

Martin county, one man in college, is infected, 100 per cent.

Hertford county, sixteen men in college, 14 examined, 10 infected, 71 per cent.

Bertie county, four men examined, two infected.

Onslow county, two men in college, one infected.

Burke county, three men examined, and two were infected.

Henderson county, two men examined, and one infected.

New Hanover county, only one man examined from this county; he was infected.

Halifax county, two men were examined and one was infected.

Robeson county, five men were examined and three were infected.

South Carolina: Furnished six of above fifty-three cases.

Florence county, six men in school, four examined, all four infected. Two would not submit, but clinically were typical cases.

Then one case came from Marion county, and the sixth case from same county that I failed to get.

One of the above 53 cases came from Sevier county, Tenn., a very mountainous county.

Now, gentlemen, these are facts, and their interpretation speaks for itself. There is only one conclusion left you.

Its occurrence in Iredell, Burke, Wilkes, and Sevier counties (this last in Tenn.) shows that the clay districts are not immune by any means. According to my observations the cases are not as frequent and not as severe as they are in Eastern Carolina.

Add to these 53 cases, 71 cases diagnosed for Dr. Nicholson, of Richlands, Onslow county.

Six cases for Dr. Harrell, of Tarboro.

Four cases for Dr. Hicks, of Dunn.

Four cases for Dr. Cox, of Jacksonville, Onslow county.

One case for Dr. H. W. Lewis, of Jackson.

One case for Dr. R. H. Speight, of Wrendale, Edgecombe county, and seven cases which Prof. Stevens, of the A. & M. College collected for me from the State penitentiary, and we have a total of 147 case diagnosed microscopically in North Carolina since September, 1903.

From these 147 cases, I have collected etiological data bearing on 128 cases, on which data I wish to base some conclusion regarding etiology of the disease.

Now I will state here for the sake of those who question the correctness of above diagnosis, that the diagnosis of uncinariasis microscopically is considered by all competent microscopists as one of the easiest diagnosis. If proof is desired I will state that not in a single one of the above cases did the thymol treatment fail to confirm diagnosis by expulsion of worms. I know of at least 70 cases so treated.

Etiology: This part of our subject naturally divides itself into two parts: First, a study of the anatomical and biological character of the parasite, and the second, its mode of entrance into the system. The first part, I shall not touch upon here, on account of limited time. To those interested in this part of the subject I would advise to read Bulletin No. 10, on "The Distribution of Hookworm Disease in the United States," by Dr. Charles Wardell Stiles, of the Bureau of Animal Industry; also see Dr. Allen J. Smith's article in the November, 1903, issue of The Journal of American Medical Science.

The second part of our etiology, viz: its mode of entrance into the system, is not near as well understood as its anatomical and biological characteristics. And this is the most important part of the etiology, for upon an understanding of the mode of infection will depend the rational and effective application of the preventive treatment upon which will depend the extermination of the disease.

In the outset we may consider three mites of infection possible:

1st. Taking of food contaminated with fecal matter, i. e., dirt-eating.

2nd. Through the drinking water.

3rd. Through the skin in the lesions of ground-itch.

Now let us study these portals of entry a little more in detail.

The first, dirt-eating, we can readily understand. It is the simplest mode of infection. Dr. Stiles seems to consider it the principle mode of infection.

So much importance is attached to this view that the disease is know as dirt-eaters anemia, brick-makers anemia, tunnel anemia, miners anemia, etc., all occupations associated with soiled hands, and of course a certain amount of dirt-eating. Then we must not forget that dirt may get into the mouth on fresh uncooked vegetables, such as celery, radishes, water cress, etc. Here, too, it is well to remember Allen J. Smith's

caution that some dirt-eaters are not in any way exposed to infection with uncinaria. For some dirt, as ashes, soot, mortar, etc., could not possibly harbor larvæ.

Again let us not forget that dirt-eating is often *an effect* and not a cause of the disease. This is a well-recognized association of anemia. *Second mode of infection, viz., through drinking water,* demands more detailed consideration. As Dr. Stiles has pointed out, and I have frequently verified, the eggs rapidly degenerate when they sink in water. So that if a stool, immediately after voiding, was washed into water the eggs would rapidly perish.

Not so if the stool lies on the ground two or three days until the eggs hatch out into the young embryo, which is the infective stage. Now a rain comes and carries the young worms into a nearby spring, stream, or surface well. Loose has shown that these young worms pass rapidly through sand filters, and, furthermore, that they will live at least thirty days in water. These larvæ in the well sink to the bottom, but the bucket also sinks, and could bring up the young worms as easily as it does the grains of sand found in nearly every bucket of water. Dr. Smith seems to think that possibly the winds play a part in spreading the dry feces, in the form of dirt on the house-tops, where the eggs can be washed down into a cistern, and there develop. But experiment proves that these eggs and larvæ die rapidly on drying. So until it is proved that the eggs can withstand drying, the wind can be disregarded as a factor in spreading the disease.

Third mode of infection, viz., through the lesions of ground itch. I have purposely left this till the last, because I want to go more into detail, as I believe it is the principal portal of infection in Eastern Carolina. What relation does ground itch bear to uncinariasis? That is an important question. Now in considering this phase of our subject, the first question to present itself is this: Is ground-itch infectious? Here is the evidence derived from the articles of Elliott, of Assair, India, who gives clinical evidence, of Dalgetty, of S.

Sylhet, India, who gives both clinical and experimental, and lastly from Bently, of South Africa, who furnishes experimental evidence, and all this evidence answers the above question in the affirmative.

Let Elliott testify first: In the Journal of Tropical Medicine for December, 1900, he reports the clinical picture of ground-itch, and in considering the cause arrived at the following conclusions:

(a) The disease manifest itself from May to September, the largest number of cases occurring in August, July and September.

(b) They are most numerous after heavy rains when the ground is moistened and sticky.

(c) They occur in only those who go barefooted and expose themselves to the wet earth.

(d) It does not occur at all or only to a slight extent on new land.

(e) Cases are most frequent and severe in those who work about the lines, where the ground is thoroughly manured. The frequency and the severity of the case being proportionate to the fecal material contained in the soil.

Now, in order that you may properly appreciate these observations, it will be necessary for you to recall the important points in the biology of this parasite. You will remember that auto-infection cannot occur, that for every worm in the intestinal canal, a young worm, not an egg, must enter the system.

The eggs never hatch in the intestine. In the fresh stools they are unsegmented or in the very early stages of segmentation. These eggs then are contained in human feces. After being deposited, if the temperature is kept between 21 and 37 dg. C., if the stool is kept moistened, not allowed to dry, and exposed to the air it hatches out in 24 to 48 hours into the first stage which, can live well in water; in fact, requires much water. This last stage reaches in about four to seven days its second stage, which is the infective stage.

Now returning to Elliott's observations, let us see what they tell us.

We see to produce ground-itch we must have contact of the bare skin with fecal contaminated soil, at a certain temperature and containing a certain amount of moisture. All of these five factors must be present, i. e., bare-skin, soil, feces, moisture and a certain temperature. No one, two, three, or four of these conditions will produce ground-itch. Ground without moisture will not cause it, or it would occur in the warm months of April and May, when there is feces, bare-skin, sandy soil, and warm temperature, all present. Moisture without temperature of about 27 deg. C., doesn't cause or they would have it in the winter. Ground with required temperature and moisture doesn't cause, or it would not be so scarce on new lands. It is not air, or the Europeans who breathe the same air as the barefooted native, would have it. They don't bring their bare skin in contact with the ground. We have here a mass of circumstantial evidence that would indicate, first, that ground-itch is infectious, and second, that the infection seems to be derived from human feces. Then assuming infection, what is the infectious agent?

Do you notice any conformity of above conditions, *i. e.*, presence of feces, certain temperature, moisture, etc., to the biological requirements of the hook-worm larvæ. You certainly do. Is it possible that these parasites produce ground-itch? Allow Bently to answer that question. Having had his attention attracted to this possibility by finding a short rhabditiform embryo in the lesions of ground-itch, he performed the following experiments: He took two stools, one we will call A., which was infected with the larval uncinaria. A second stool we will call B., which was free from uncinaria. He then sterilized a mass of sand. Dividing this, he mixed part with stool A. and part with stool B. Now A. was divided into two portions which we will call a and a; B. was also divided into b and b. Now he exposed both a and b to the air for eight hours, till they were dry. Now all four

portions were moistened and applied to the skin. A produced an erethema exactly resembling ground-itch, and only a few dead larvæ remained in the mass a. In a which contained many larvæ killed by drying there were still all the original larvæ.

Now Dalgetty exactly agrees with Elliott on the predisposing canals, viz: bare-skin, moisture, temperature, etc., but differs with Bently as to the direct cause. Dalgetty's work preceded Bently's two years. Dalgetty attributes ground-itch to the rhizoglyphus parasiticus, a parasite closely resembling the itch mite. Its association with fecal material, he explains on the ground that this parasite lives best on rich organic matter.

I am not inclined to accept Dalgetty's theory as to the direct cause. These are my objections.

1st. From his paper his technique would appear faulty.

2d. He does not give per cent of cases in which this parasite was present, an omission that he would not have made, had the parasite been found in very many of his cases.

3d. He fails to explain the association of ground-itch with fecal contaminated soil.

Now from this evidence I believe we are justified in looking upon ground-itch as an infectious dermatitis, due to the entrance of the larval uncinaria into the skin, carrying with them certain bacteria which modify the lesion. Now if ground-itch is infectious, and we believe the infectious agent is the larval uncinaria, we may very properly ask, does the skin infection bear any relation to the intestinal infection?

For an answer I refer you to Loose's experiment. Loose is a most careful investigator. His work is accepted by all authorities. These experiments were done as early as 1898. He examined the feces of two puppies and definitely assured himself that they were free from hook-worms. He then shaved their backs and applied a poultice, composed of charcoal and feces infected with larval uncinaria to the bare skin. Both puppies died on the ninth night after the poultice was

applied. The autopsy showed many young hook-worms in their intestines, which corresponded in stage of development to young worms found in another dog's intestine, which dog had been fed on the same stool that was applied to the puppies back. Then Loose did the same experiment on a man. His stools were examined and found free from hook-worm eggs. A poultice containing uncinaria infected feces was then applied to the back of the man's forearm. On the 71st day thereafter, the man's stools contained the eggs of uncinariæ. Now this proof that uncinaria may enter through the skin is accepted. It is not without analogy. The weight of evidence goes to prove that this occurs in infection with Bilharzia hematobia, where the parasites are found in the bladder, ureter, and kidney.

But you say, having entered, why should they locate in the intestine? We don't know how, we know they do. The selective affinity of various parasites for different tissues, is a well recognized fact, and is accepted by all authorities. We have examples of this selection in infection of the brain with cœmirum, infection of the liver with ecchinoccus or amœla, infection of the muscles with trichinæ spiralis, and lastly infection of the intestine with ankylostoma duodenale. The fact stands and some day the explanation will appear.

Now assuming that you accept the great frequency and the pathological significance of this monstrous evil, I think you will agree with me, in claiming that the preventative treatment is most important, for upon this will depend the extermination of the hook-worm. Now to effectually apply this prevention, we must understand the mode of infection. Of course the above three routes of infection, viz., dirt-eating, drinking water, and ground-itch, I think we can safely accept all as possibilities, and in applying the "source of prevention" all should be duly considered.

But which is the most important? Which is the most accessible portal to the hook-worm? To answer that question I have collected data bearing on 118 cases, distributed as fol-

lows: 71 cases from Dr. Nicholson's practice; three from the practice of Dr. Cox of Jacksonville, Onslow county; four cases from the practice of Dr. Hicks, Dunn, Harnett county; four cases from the practice of Dr. Harrell, of Tarboro, Edgecome county; and 35 Wake Forest students.

Here is some of the evidence furnished by these cases.

Race: All the cases were white. Some have claimed that the disease was just as frequent in the negro, but not so apparent on account of the difficulty in recognizing anemic conditions in this race. However, Dr. Nicholson has made some important observations right here. He went to considerable trouble to find it in the negro. He only found a notable absence of symptoms (other than pallor) in this race. In only one case was the suspicion strong enough to justify stool examination. In this case microscopically the stools were negative, and likewise the results of thymol. This is a very interesting point for investigation. The evidence at hand clearly points to a relative immunity in the negro. I will further state that ground-itch is common in the negro.

Sex: Of course the students were all males, and in considering the influence of sex should be ruled out. Of other 82 cases 47 were male and 35 female.

Residence: Of the 118 cases, 109 lived in the country and nine in town. But this included 71 cases from Dr. Nicholson's practice, all of which were from the country. It is not right to consider the bearing on residence of the 71 cases. We get a better idea concerning the influence of residence if we take the 35 students. All of these 35 students were from the country, except seven. These seven lived in mere villages, except in one or two cases, and every one had lived in the country at some period of their lives.

Soil: The soil is usually a compact layer of fine gray sand containing much organic matter, with a sub-strata of stiff clay twelve or eighteen inches beneath the surface. This clay sub-soil serves to hold the moisture necessary for the

development of the parasite. In those sections where there 5 to 12 foot of coarse sand there is a notable absence of ground-itch and hook-worm disease. Dr. Nicholson's practice is distributed over sections of country made up of the above two soils, and he has been impressed with the rarity of the disease in the latter kind of soil.

Occupation: Of the 118 cases, 117 farmed and one worked in a cotton mill.

Family Disease: Of 90 cases occurring in Dr. Nicholson's practice 39 families were represented. The total membership of these 39 families was 280. This gives 32 per cent of the family infected, as shown by the microscope while at least 26 per cent more show clinical evidence of the disease.

Age: The students ranged from 17 to 30 years; 12 were under 20, and 18 between 20 and 25, making 30 of the 36 cases under 25 years of age. Taking the 82 mixed cases the ages were as follows:

Youngest $3\frac{1}{2}$ years old.
Oldest 56 years old.
Two were 50 years old.
Under five years there were five cases.
Between 5th and 10th year 14 cases.
Between 10th and 15th year 28 cases.
Between 15th and 20th year 15 cases.
Between 20th and 25th year 9 cases.
Between 25th and 30th year 2 cases.
Between 30th and 35th year 4 cases.
Between 35th and 40th year 1 case.
Between 40th and 45th year no case.
Between 45th and 50th year 3 cases.
Between 50th and 55th year no case.
Between 55th and 60th year 1 case.

Dirt-eating: Of the 36 students 31 denied dirt-eating, three admitted dirt-eating, and two chewed parched coffee. Of the 82 mixed cases 64 denied dirt-eating, eight confessed

dirt-eating, five chewed rosin, two chewed rags, two chewed sticks, and two chewed coffee.

Drinking Water: All of my eastern cases drank from shallow surface wells varying in depth from 6 to 25 feet. Many of these wells were uncovered and uncurbed. My mountain cases all drank from springs. As is the custom on farms, both the western and eastern cases drank from creeks occasionally when at work in the field.

Notwithstanding this questionable water supply in every case, and Loose's demonstrations that the larvæ pass rapidly through sand filters and live well in water, we do not believe that drinking water is an etiological factor of much importance. Of course it is a possible route of infection.

We do not believe water an important etiological factor: first, because the disease begins in the average case at $7\frac{1}{2}$ years, in our cases 73 per cent coming on before the 10th year. Now this is before the child begins to run about or work on the farm. If it came from drinking from springs, creeks, or branches, you would expect it more frequently after the fifteenth year, and more frequently in males. If it were from the "house well" then the disease should not be so markedly confined to early life, and the adult should be more often victim, because he drinks more water than the child. Second, it occurs usually among the tenant class, who move from one farm to another every year or so. They move in the winter, and the frost and snow sterilizes the old home for the new occupant in the spring. Now, if the infection comes from the well, which the frost and snow would not sterilize, the new family should fall victims to the disease of their predecessors. Dr. Nicholson, with the 39 families under his care, has carefully observed this point, and no such infection of the new family takes place, unless their habits are uncleanly.

Ground-itch: Every single case in the 118 cases, except one, gave a history of ground-itch, and this exception was

one of my students from Iredell county, who said he didn't know what ground-itch was. Admitted that he had suffered with dew-crack.

Now from above evidence, and certain important points to be noted further on, we claim *that the great mass of evidence favors ground-itch as the most important factor in the transmission of hook-worm disease*, and that while drinking water and dirt-eating are possible sources of infection, they are nothing like so important as ground-itch.

What are the grounds for such a claim?

(1) Nearly every case of uncinariasis gives a history of ground-itch. If we accept Bently's theory of ground-itch, *i. e.*, due to entrance of hook-worm larvæ, carrying in with them certain bacteria, which *latter* cause the ground-itch, we can explain the cases without history of ground-itch, as due to the entrance of larvæ with only very few bacteria or non-virulent bacteria, not sufficiently numerous or virulent enough to cause the itch. Or probably a better explanation would be that these cases were infected through drinking water or dirt-eating, as soiled hands.

(2) It has been noted that in localities where ground-itch is frequent there uncinariasis is frequent, and where there is no ground-itch little or no hook-worm disease.

(3) The age shows that hook-worm disease occurs when the children are going barefooted. You will notice from the *age table* that it does not occur in babies under three years, for they do not run about on the wet ground.

Also notice that the disease increases from the 5th to the 15th year and then declines. At this age all children go barefooted and they are most active then. See age table.

Cases are uncommon, comparatively, beyond the 25th year, rare beyond 35th, and when they do occur are light, and usually on the decline. Among the students the decrease was light and was declining, because the men had ceased to go barefooted.

Here is a most interesting point. Of 30 students treated with thymol, the average number of worms expelled was 20. These men gave history of going barefooted till 12th to 14th year.

Now there were six men from Sampson county. A peculiarity of these fellows is to go barefooted till 17 to 20 years of age. The average number of worms from these six fellows was 113. One man expelled 350, another 120, another 100, another 68, another 30, and another only 10. And I find the fact suggested here applicable to all cases. My severe cases in men beyond 20 are in those who have gone barefooted much of their time.

(4) The severest cases give a history of severest ground-itch.

(5) Dr. Nicholson has observed families in which the only case of uncinariasis was the only child that had suffered with ground-itch. Mind you, this child drank the same water, and eat the same amount of dirt as its brothers and sisters.

(6) We have at least five cases of what may be termed acute uncinariasis. These cases present the following history: Perfect health, then a sudden primary attack of ground-itch, which incapacitates the individual. Developing within three to six weeks, a profound anemic bloated condition comes on, in every way resembling the picture of chronic parenchymatous nephritis on inspection. Thymol given after finding eggs, and the condition is completely cured. So striking and convincing of ground-itch as an etiological factor, are these cases, that I would like to report them, if space were at my disposal.

(7) Where patient ceases to be troubled with ground-itch, improvement usually begins.

(8) Allow me to offer my last bit of evidence in favor of ground-itch as a cause, and at the same time report the youngest case on record, and I will close.

N. J., 2 years and 4 months old, when diagnosis was made microscopically. Lives in a log cabin on a *dirt floor*. Associated with mother and five other children who have uncinariasis. When this child was 17 months old, in the summer of 1903, the mother was obliged to leave the child on this dirt floor, while she and the other children assisted a neighbor to "hang tobacco." The child very soon developed an attack of "mad itch" over buttocks and lower limbs. Till now the child was red-faced and happy. After this "mad itch" its health rapidly declined, and among all our cases, we have seen no more distressing or aggravated case.

Now, gentlemen, let me ask this question: If dirt-eating and bad water supply are responsible for the majority of cases, as Drs. Smith and Stiles would seem to favor, why does it occur so rarely under three years of age? For who eats more dirt than the baby, or what organ is more susceptible to infection with parasites than babies intestines, which harbors nearly all other intestinal worms, but rarely uncinaria? If drinking water is such a factor, why should it be more frequent in children than adults, who drink less water than adults.

We therefore conclude: *That concerning the etiology of hook-worm in North Carolina ground-itch is by far the most important portal of infection, and that dirt-eating, and contaminated water supply, while capable of infecting, are nothing like as important as ground-itch, as a source of infection.*

In concluding, I wish to acknowledge my indebtedness to Dr. Nicholson, of Richlands, for much contained in the above. The work was possible only with his hearty co-operation. I am also indebted to the North Carolina Board of Health, for both their financial and moral aid. To Dr. Cox, of Jacksonville; Dr. Harrell, of Tarboro; Dr. Hicks, of Dunn, I am very grateful for their support.

A Plea for a More Just Judgment of Narcotic Drug Users.

BY GEORGE E. PETTEY, M.D., MEMPHIS, TENN.

When I began the preparation of this paper I intended its title to be "A Plea for a More Charitable Judgment of Narcotic Drug Users," but on getting into the subject more fully, I saw that it is not charity that I should ask, but simply justice. Therefore, I come before you to-day making a plea for justice and not charity. I hope to show you that thousands of the most wretched and helpless of all human beings are being constantly and openly stigmatized as degenerates, willful perverts, inveterate liars and fiends, and are having numerous other epithets of reproach and condemnation heaped upon them for continuing a course of conduct to which they are impelled by forces that it is totally beyond their power to resist. Whether an opium addiction was formed from necessity or as a dissipation, justifiably or unjustifiably, the condition finally becomes the same and when the condition of confirmed addiction is reached it is as truly a disease as typhoid fever, and the normal supply of the drug used is a necessity for the comfort and well-being of the victim.

Let us consider for a few minutes the condition into which an opium user is thrown by being deprived of his drug. Dr. Wilson, Vol. V., Pepper's System of Medicine, says: "Opium habitues, differing as they do among themselves as long as the drug is freely taken, all alike develop characteristic symptoms upon its speedy or gradual withdrawal * * * The nervous system, whether it has been accustomed for months only, or for years, to the influence of opiates is, upon their withdrawal, forthwith thrown into derangements of the most serious and wide-spread kind. In the course of a few hours after the last dose, the steadying influence of the drug disap-

pears. General malaise is associated with progressive restlessness, the ability to perform the ordinary duties of life gives way to profound indifference; percordial distress, accompanied by cough, is followed by insomnia, hallucinations and sometimes mania. The habitual pallor of the face is replaced by a deep flush or cyanosis. The heart's action becomes excited or irregular, then feeble; the pulse, at first tense, becomes slow, thready and irregular. Attacks of yawning and sneezing are followed by convulsive twitching of the hands. Speech becomes hesitating, drawling and stuttering. These phenomena are associated with a sense of complete prostration which obliges the patient to take his bed. Pains in the back and limbs followed by neuralgias occur. Complete anorexia, with easily provoked or even causeless vomiting and persistent nausea with diarrhea, difficult to control, add to the gravity of the condition. * * * During the early days of the abstinence, the evidences of cardiac failure are marked. Enfeeblement of the first sound, irregularity of the heart's action and intermissions are common * * * Restlessness is continuous and very often intense and patients are with difficulty kept in bed. If left to themselves, they move frantically about the room, moaning and bewailing their condition and begging the attendant for that which alone is capable of relieving their distress. This condition gradually subsides, giving way to one of profound exhaustion. * * * The appearance of the patient is now most pitiable. The countenance is blanched and pinched, the body drenched with sweat, the heart action feeble, the pulse thready and irregular. * * * Failure of the circulation may, notwithstanding every effort to control it, reach such a degree as to jeopardize the patient's life."

Erlenmeyer says: "The patient after withdrawal is left in such a condition of physical weakness and mental dilapidation as to be the victim of intolerable suffering. * * * He can not sleep, has no appetite, often vomits and feels too much used up to rise from bed. This condition grows worse

from week to week. Various attempts to cure prove useless. Morphine is the only remedy." Butler's Therapeutics, p. 452, says: "The treatment of so dire a malady for such the chronic use of morphine must be regarded, demands the utmost forethought, patience and tact. The method of sudden, absolute withdrawal of the drug is admitted by the wisest observers to be fraught with dangers commensurate with that of the indulgence to be overcome. Collapse, insanity and other serious results have attended so drastic a measure. The gravity of the situation should from the first be fully realized, since it is too often simply a case of life or death, the patient being not infrequently seized with the desire of self-destruction in the extremes of mental anguish occasioned by the ordeal imposed by unwonted abstinence."

Other writers of undisputed authority enumerate intolerable suffering, violent delirium, transient or permanent dementia, suicide and death as occurring to drug users because of being deprived of their drug supply. Notwithstanding these clear and distinct teachings by men of unquestioned authority, the great majority of professional men regard the users of narcotic drugs as being wilfully abandoned to a loathsome habit which they could discontinue if they would. As a result of their holding such views, the public have been taught to regard these victims as perverts who are devoid of moral courage and right purposes in life and who take their drug simply to dream away the time and, who are unworthy of any treatment other than social ostracism. The fact that such opinions are generally held among the people is a matter of common knowledge, and when one falls a victim to a drug, however strongly he may have condemned others for what he considered a voluntary, loathsome habit, he soon finds there is another side to the question. Comparatively few persons form the opium habit voluntarily or as a dissipation. Usually it is formed inadvertantly or because of the use of the drug for the relief of pain. There are very

few drug users who have not made many and often very desperate efforts to extricate themselves from the thraldom of the drug or who have not, by some circumstance or other, been deprived of their drug supply. These efforts at abandonment or periods of deprivation have brought upon them the sufferings incident to the disuse of the drug and these have proven to be so excruciating and intolerable as to thoroughly convince them that the voluntary abandonment of the drug is entirely out of their power; that what they once blamed others for not doing, they are themselves unable to do.

While such experiences may have worked a radical change in their own opinions they are well aware that public opinion—the irresistible moral force—has not undergone any such change. They are acutely or possibly morbidly sensitive to the fact, but they are not changed in their purposes in life, in their desire to have and retain the respect and confidence of their friends and the public in general. They still love their life and their good name is as dear to them as ever. They feel confident of their own integrity and good purposes but they know that the drug is a necessity to them. They also know that if their use of the drug should become known the blighting sting of public opinion would lacerate their very souls, therefore, in order to shield themselves from criticism and censure, springing from what they now know to be misguided public opinion, they procure their drug and use it in secret. Thus they start out leading a double life, a life of deception, with a skeleton in the closet that must be kept constantly concealed from public gaze, but the motives which prompt them to that course are not dishonorable. Self-preservation is said to be the first law of nature. A man is justified under the law in taking the life of his fellow-man when necessary to preserve his own and, in the protection of his good name, which to a right thinking man is as dear as his life, very great liberty of action is allowed.

The acts that are held to be a perversion of character which are manifested by many of these persons are not due to the physiological effects of opium or to any pathological conditions induced by it. The use of this drug does not, of itself, beget moral degeneracy. This springs largely, if not altogether, from another source. This is clearly shown from the fact that drug users who are independent of such influences maintain their integrity, sustain their good name and retain the respect and confidence of their associates. To illustrate this point, I will relate the history of three cases.

The first is a druggist who has used morphine 18 years, running up in quantity during that time to twenty grains per day. He has during all that time continued to attend to his business, has been successful as a business man, has built up and held a large trade, and has himself done much of the prescription work and other delicate work connected with the business. His family and his physician knew of his addiction but never at any time reproached him for it or tried to control him with reference to it. The public had no occasion to know of it or to be concerned about it, therefore, asked no questions. Being a druggist and independent financially, his drug supply was always at hand and was taken at regular intervals and in uniform quantities. In this way he kept himself in a fairly normal condition and neither the public nor the people with whom he did business suspected his use of the drug. A uniform supply of the drug was as necessary to keep this man in a normal and comfortable condition as it would have been for any other drug user, but, being in a position to have entire control of the drug supply, he was not compelled to resort to questionable means of obtaining it and, as his family made no objection to his course and did not any time attempt to stand between him and his drug supply, he was not forced to use deception or other questionable means to obtain the necessary thing.

Being thus favorably situated, he was able to retain the confidence of his family and friends, and of the public at large.

The second, a similar case, was a physician who became addicted to the use of morphine during a protracted attack of inflammatory rheumatism and, after about six months use of the drug for the relief of that ailment, the rheumatic symptoms subsided and an effort was made to discontinue the drug, but without success. After a little delay, another effort was made with the same result. The suffering resulting from these efforts, with the necessary resort to the drug for relief in each instance, fully convinced the doctor and his family that it was out of his power to discontinue it and they all accepted the situation and looked upon his addiction as a misfortune for which he was in no way to blame, and from that time on for more than twenty years he continued the use of the drug with the full knowledge and consent of his family, but without his patrons or the public knowing anything whatever of it. He kept an ample supply of his drug always on hand and used it in uniform quantities and at regular intervals, and during all these years he kept up an active practice, and held the confidence of his patrons and of the business public. He was always an unwilling slave, and no element of dissipation was allowed to enter into his addiction. He bought the drug in tablet form so as to be exact about the dose and only took a sufficient quantity to keep him comfortable. In this way he succeeded in holding the dose down to six grains or less per day. On days when he had little to do, he used not more than four grains, but on other days when there were taxing duties to meet and when his hours of work were prolonged into the night, as much as six grains were required to sustain him. From his appearance or conduct, no one would ever suspect his being a drug user and he was, when he came for treatment, in an active practice and holding a number of official positions in the profession. He was a man of intelligence and of fine family

and character, and very acutely felt his slavery. He says he realized that the drug was injuring him, especially his memory, therefore, he wanted to be released from its thraldom.

The third, another of this type, was a refined, delicate woman, who had been given morphine for several months to prevent an abortion, and after her confinement she was unable to discontinue it. She made repeated efforts, with the assistance of her husband, to leave off the drug, but her condition in each instance became so critical that her husband would not consent for her to make further effort in that direction and, instead of chiding her or blaming her for her inability to leave off the drug, he bought it for her in sufficient quantities and told her to use it as she found it necessary. She suffered from a number of ailments which led to an increase of the dose to about 20 grains per day; but, for several years no one knew of the use of the drug except her husband and her physician. Later her father and brothers were informed of it and, as they had heard of my work in this line, they urged her to come for treatment. When she was brought to me her husband and brother gave me a history of the case, her husband stating that he recognized it as a misfortune for which his wife was in no wise to be blamed and, since he realized that it was out of her power to quit it, he had kept her supplied with the drug so that she had never been forced to obtain it any other way or to resort to deception in connection with the habit. He said that she had always been perfectly open and frank with him about the matter and that the use of the drug had not in the least rendered her unreliable or untrustworthy. She was with me about six weeks and I found her entirely truthful and trustworthy, never at any time attempting to deceive me or indulging in extravagant or unfounded statements. In fact, she showed the same high sense of honor and exercised the same caution in statement and respect for her word that would

be expected in a woman of refinement and culture afflicted with any other disease, notwithstanding the fact that she had been using morphine, in considerable quantities, for more than five years.

These are fairly representative of a large per cent of drug users who come under the care of one engaged in the treatment of such cases. It is true that this class of drug users are almost unknown to the public and are very little known to physicians in general practice, but they are not at all rare among those who apply for treatment to institutions devoted to the treatment of such cases. The mere use of opiates does not make perverts or moral degenerates of people who were of good character before the use of the drug was begun and, the fact that some such persons do retain their integrity and sustain their character and standing, notwithstanding the use of this drug, forces us to look elsewhere than to the effect of the drug for an explanation of the traits of character usually seen in drug users. Let us, therefore, study the history of a few other cases.

Case four is of a different type, but at the beginning her character and standing were first-class, she was a member of a good family and married to a lawyer of prominence. She made an ideal wife, loved her home and devoted herself largely to making it attractive to her husband. Something over a year after her marriage, she became the mother of a fine boy which was the delight of both father and mother, and for the next two years their home was an ideal one. About this time another conception occurred. All went well until about the fourth month, when she was threatened with a miscarriage. The family physician was called and it became necessary to confine her to bed and administer morphine for about ten days to prevent an abortion. She was then allowed to get up, but a few days later the symptoms returned. She was again put to bed and morphine was administered, and this time continued for three weeks without the intermis-

sion of more than a full day. Morphine was then discontinued and she was allowed to get up, but in a few days the uterus became rebellious again and it was necessary to resume the use of the opiate. By continuing the opiate from that time on, she was carried on to her full term and delivered of a healthy child. She had both a perineal and a cervical injury at the confinement, which protracted her convalescence and caused considerable suffering, and the morphine was continued until the baby was two months old. By this time, she had sufficiently regained her strength to be up and about the house. Her physician then told her that it would not be necessary to longer use the opiate, discontinued it and dismissed the case. In about 24 hours her suffering became so acute that he was again called, but declined to give an opiate, insisted that her suffering was mainly imaginary and told her husband that as soon as she found she could not get more morphine she would become quiet and quit complaining. Her husband believed this and told her that he would not allow her to have more of the drug under any circumstance and, leaving her with her servants, went on to his business. As the addiction had been confirmed by more than six month's use of the drug, her sufferings increased until they became unbearable and, realizing that she could not expect relief from either husband or physician, she sent a servant out and obtained a bottle of laudanum. A full dose of this gave her a fair degree of relief, and when her husband came home in the evening she was more quiet and he felt that the doctor's word had come true and that they had, by their firmness, broken his wife from the use of morphine. But he was mistaken. When the first bottle of laudanum was exhausted, more was obtained. This was used as sparingly as possible and she made numerous efforts to leave it off altogether. Finding herself unable to do so, she continued it and by discreet management used it for a period of two

years before it was detected by her husband. When he did become aware of it, he reproached her for it very severely, and again applied to his physician for advice in the matter. The physician assured him that her use of the drug was a mere dissipation, a habit that could be abandoned at will, and advised him that if she did not wish to leave it off, she should be compelled to do so. Her husband urged her to leave off the drug, and she promised to do so, and did try faithfully, but of course she could not succeed. Her husband criticised her severely for her failure to keep her promises in the matter, and attributed to her all kind of evil purposes. Finding that these did not avail, he determined to cut off the drug supply. He deprived her of money and notified all the druggists in his town not sell her or credit, and urged them not to sell her opiates at all. This made it necessary for her to resort to many expedients to procure her drug, and even then she was not able to obtain it regularly. When she could not obtain the drug by other means, she would sell her clothing to negroes and get them to buy the drug for her. Another plan was to order groceries and sell them at reduced rates to get money to buy the drug. At times she was unable by any of these means to obtain her drug supply, and at such times she would secure whiskey and drink that. This, of course, disgusted her husband, and his position became one of extreme bitterness toward her. The wife realized that it was out of her power to comply with her husband's wishes and discontinue the use of the drug. The intense suffering that came on when she was out of her drug became an impelling force which compelled her to do almost anything to obtain that which alone was capable of giving her relief. The position occupied by her husband and her physician was so extreme and they so totally misunderstood the necessities of her case that there could be no common ground of agreement between them. They felt that she was pursuing that course from preference, as a deliberate choice,

that she had lost all respect for herself and for her family and had become totally depraved, and they treated her accordingly. She was conscious of her faithful efforts to comply with their demands, but was also painfully conscious of the fact that it was out of her power to break the fetters that held her a slave to the drug. Strive as she would she could not do so. Much as she desired to regain the confidence and love of her husband, the unbearable suffering experienced and the extreme desperation brought on by failure of her drug supply impelled her as an irresistible force to turn a deaf ear to all their entreaties, to disregard all promises made to them as to leaving off the drug, to smother all motherly and wifely instincts, if need be, and to continue to resort to all forms of deception and intrigue that were found necessarry to obtain her drug supply. It had, in her experience, become the one supreme necessity of life.

The fifth case, D. G., a young man, aged 18, was given morphine seven months during an attack of rheumatism. At the end of that time the rheumatism symptoms had disappeared and his father who was a physician and had attended him, decided to withdraw the morphine by gradual reduction and began to do so. Things progressed fairly well for a time, but after the dose had been cut down considerably, the suffering of the patient was extreme. The father had mapped out a plan which he felt he must not vary from. The son suffered intensely for a number of days, but all his pleadings for something more to relieve him were ignored. His father told him that he would rather see him a corpse than for him to continue the use of morphine, and insisted that the course he was pursuing was the only one that promised relief and that he must stand the suffering. The reduction was continued until the last of the drug was withdrawn, but the condition of the patient was most desperate. He could not sleep, had no appetite, was extremely nervous, had an exhausting diarrhea that nothing seemed to benefit.

and in many other ways his suffering was unbearable. In this extreme condition the son, by the aid of a friend, secured a supply of morphine tablets. These were used very sparingly, and only enough to overcome the most acute suffering, the young man feeling that if he could only get a little relief he could bear the balance of the suffering and finally get off the drug, which he was very anxious to do. The father noticed the improved condition of the son and felt that he was succeeding in curing him of the addiction. In a few months, however, the son's efforts to hold the quantity down and to keep his use of it concealed were unavailing, and the father learned of it. He was very much incensed at what he termed his son's willful disobedience and deception. He then determined to punish him and cure him at the same time, so he took the drug supply away, put an attendant with him and locked him in his room. Here for the next three days he suffered the tortures incident to the abrupt withdrawal of the drug without treatment, but by the end of that time his condition was so critical that the father became alarmed and gave morphine for relief. This was continued for a few days and then another effort was made to withdraw it, but the symptoms became alarming again and the drug was resorted to. The next year was spent in one effort after another to break up the habit, the father often resorting to harsh means and even cruel treatment in his efforts to force the disuse of the drug. This only served to widen the breach between the father and son, and to drive the son to more desperate means to obtain the drug supply. He would steal his father's books or instruments, or anything else that he could take from the house without being immediately detected and sell them to obtain the drug. If he could not get morphine, he would get whiskey or any other stimulant. His father looked upon these acts as positive evidence of extreme perversion and regarded him as utterly abandoned and hopeless.

The last two cases are representative of a large per cent of the drug users in the United States. They present a sharp contrast when compared with the first three cases reported in this paper. Between them there are all grades and varieties, and while they all use the drug in common, they differ radically in other respects, and I can not regard the traits of character manifested by many of them as being due to the effect of opiates. In studying the history of a large number of cases who were unquestionably of good character prior to the formation of the addiction, I have found that the perverse traits of character were prominent or not, just in proportion as the other influences herein mentioned were present or absent. If the addiction was formed by one who was entirely independent and could secure and use the drug without being interfered with by any one, he retained his integrity, his business and social standing, etc., to a fair degree, but where the habitue was dependent on some one else for his drug supply, and this one a person who did not understand the necessities of his condition, or where his family or friends, or those to whom he was subject undertook to break the "habit" by withholding the drug supply or the means of obtaining it, or where adverse fortune made it necessary for the drug user to resort to deception and other such means to procure the drug, the perverse traits of character were very prominent. These perverse traits were present in proportion to the length of time and the degree of intrigue and deception the drug user was forced to use.

I think the conclusion is inevitable that in the fourth case herein reported the failure of the husband and physician to properly understand the condition of the patient and to provide the relief her condition demanded forced her, in the first place, to begin a life of deception, and their harsh criticism and unjust treatment caused her to continue to pursue a course which they could only look upon as one of extreme dissipation. The same influences were responsible for the conduct of the patient in case five. The mistaken

views held by the father led to the son's wretched condition. No greater mistake was ever made by well meaning persons than to attempt to deprive of his drug supply one who is addicted to the use of morphine. Such efforts only serve to drive the drug user to secret, and often, to immoral acts to procure his drug supply. The only proper and reasonable course is to recognize the condition as a misfortune, a disease, as it really is, and one which can not be overcome by merely depriving the patient of his drug. It should also be borne in mind that it is a really hazardous proceeding to deprive a drug user of his drug supply, since dementia or death may be the result.

Another case will illustrate still another phase of this subject.

Case six, C. H. T., belongs to a different class. His parents were in moderate circumstances, but lived in the crowded city district, where the son formed acquaintances that were anything but desirable. At 16 he began to drink and gamble, declined to continue in school, and set out to make his own living. His ideals were low and, having no well defined purposes, he obtained employment first at one thing and then another, but painting seemed to be his preference, and by the time he was twenty he had developed considerable skill as a house and sign painter. This enabled him to earn good wages and furnished him means with which to buy liquors. He would work faithfully for a few weeks, but as soon as he accumulated a little money, he would go on a spree and not stop until his last cent was spent and his credit exhausted. His money being gone, the saloons would no longer shelter him and he was frequently taken in charge by the police and sobered up under their care. At other times he would apply to physicians for something to quiet his nervousness and enable him to sober up. This something too often proved to be morphine given hypodermically. This had to him a most delightful effect, bringing quietude to his shattered nerves

and rest to his excited brain. He soon learned that under the influence of opiates the demand for strong drink was much less urgent and that he could control himself more fully than when using whiskey alone. Being an adventurous creature, he soon learned the use of the hypodermic syringe, and this led to the daily use of the drug. Things progressed fairly well with him for the next year, as he used much less whiskey but, as he became more and more dependent on the drug his capacity as well as his inclination for work declined. His income decreased until it was not sufficient to support him and supply the drug he was using. He then began to resort to various expedients to procure his drug. He borrowed from friends until his repeated failures to repay forced them to refuse further loans. His next resort was to besiege the offices of physicians with some feigned complaint and beg them to give him the drug, but physician after physician, tiring of these calls, turned him away without further assistance. Then being more desperate, he began to beg on the streets, and when these appeals did not bring the necessary funds, larceny of any article that he could pawn for a small amount was resorted to. These thefts brought him into prominence in the police courts, and the accounts of his peculations in the papers brought his case to the notice of thousands of people. When he would become known to the people of one town as a chronic beggar and they no longer responded to his appeals, he would make his way to another town, and there under new surroundings he would, for a time, be more successful in obtaining assistance from physicians and from the public. But sooner or later he would be brought before the public as a morphine fiend who had committed some crime, almost always petit larceny. Later on his thefts became more frequent and of greater value, and he is now serving a term in a State prison for grand larceny.

It will be noticed that this man was reared under rather unfavorable surroundings, that he began to dissipate early.

had not very high ideals or well-defined purposes, and that morphine was added to the use of whiskey, more as a dissipation than otherwise. This case belongs to a class that forms probably fifteen per cent of all drug users—certainly not more than that—but while they are comparatively few in number, they have made a reputation for the entire generation of drug users. They are the ones who have been constantly before the public gaze; they are the ones with whom physicians have so often come into unfavorable contact, both at their offices and at the public institutions, and both the public and the profession have come to look upon them as fairly representative of the entire multitude of drug users. Their crimes and other acts of perversion have been so repeatedly brought to the public notice through the press and the courts that the public have been taught to look upon all narcotic drug users as of this class when, in fact, this is very far from the truth. One drug user of this class will often be brought to the notice of many thousands of people in an unfavorable light, while there are in the same population hundreds of other drug users who conduct themselves discreetly and never expose themselves to the public gaze. Many of these doubtless compare favorably in character and standing with the first three cases reported in this paper, yet the state of public opinion is such that if their use of the drug were known they would be classed with the perverts and stigmatized as "morphine fiends."

As a result of attributing the perverse traits of character manifested by morphine users to the effects of the drug, both the profession and the public have fallen into the error of looking upon all opium users as of the same class, and, since the comparatively small number of perverts among them are the ones who have become most commonly known, they have made the reputation by which all are judged. Such a conclusion is erroneous, and the opinion based upon it is manifestly unjust. Drug users differ from each other as greatly

as do other people. Some of them retain their moral character, their veracity, and even their reputation without blemish, while others become moral wrecks, but it is evident that other influences besides the effects of the drug are potent agents in bringing about that wreckage.

If you will recall for a moment the condition into which a drug user is thrown by being deprived of his drug, as described at the beginning of this paper, I think you will admit that it is unreasonable to expect any human being to enter upon such an undertaking voluntarily or, to submit to being forced into it if it is in his power to prevent it. I do not hesitate to say that an opium user has a moral right to resort to any course of conduct that may be necessary to obtain his drug supply. If that course of conduct should embrace untruthfulness, deception and fraud, it does not place him on the same moral plane with persons guilty of the same acts when the motive which prompts them is gain, personal advancement, or other such motive. In resorting to such acts for the purpose of obtaining a drug supply, if it can not be otherwise obtained, the drug user does only what any other human being would do under the same circumstances, and no one should be condemned for doing that which any one else would have done. Every drug user firmly believes that if he were deprived of his drug supply he would either die or go crazy, and he therefore feels justified in doing anything that may be necessary to protect himself from such an extremity.

Most morphine users deny their habit, and on that account they are charged with being notorious liars and unreliable in all matters. Here again they are judged with undue harshness. They deny the use of the drug in self-defense, to try to preserve their good name and to protect themselves from the criticism and censure of their friends, and from the sting of misguided public opinion. Since the motive which prompts an act fixes its moral quality, they should not be so

strongly condemn for denying that which if admitted would ruin their business and social standing and convict them, in the eyes of the public, of being willful perverts or moral degenerates and lead to their being known and spoken of by the inhuman epithet "morphine fiend." If self-preservation is not the first law of nature, it is one of the strongest, and it is a just and proper motive for human action.

Tuberculous Peritonitis.

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There is no subject of more vital importance, or more interesting to the general practitioner of medicine or to a surgeon, than that of tuberculosis. Especially interesting and important to every surgeon should be tuberculous peritonitis, involving the pelvis as well as abdominal viscera. I shall not hope to bring out anything new (to you all) on this most important subject at this time, but simply to get a thorough discussion of the same, thereby hoping to derive some benefit from the experience of others who have encountered this trouble. I shall only make a few remarks on the etiology, symptomatology, and treatment, etc., and give a few cases I have had, and results obtained, for so important a subject requires more time for discussion than I can give it now, and I am very sure more than the Society cares to devote to it at this meeting.

Until recent years (since the advent of aseptic, exploratory, abdominal surgery, but little was known or written on this subject, as to-day is known to the surgeon. Formerly it was treated and classed with the medical diseases, as was appendicitis) to-day it is regarded as a surgical one and treated as such. The results for good by this transition has been more marked even than that of appendicitis. The symptomatology is often times misleading, and an early diagnosis in some cases uncertain, but when a diagnosis has been made, the question as to when to operate is not so uncertain as in appendicitis, pure and simple.

The etiology is the tuberculous bacilli. The chief routes of their invasion into the serous membrane of the pelvis and abdomen are tuberculous intestinal ulceration, including tuberculous appendicitis, the mesenteric glands, through the genitourinary tract, especially through the uterus and tubes.

Twenty-eight per cent of Kelly's cases definitely dated the beginning of their trouble from labor or miscarriage—a large per cent of these cases are found in women. Sex, therefore, is evidently a predisposition, as more have it without, than with a family tuberculous history. Predisposing causes are not so easily determined as was once thought. A depressed, run-down condition of health does not appear to be such an important factor as one would naturally expect, for in a large majority of these cases we find a history of the patient being rather in a vigorous, healthy state, while in some we get a history of previous ill-health. Contrary to expectation, tuberculous diseases of other organs is not common, not even of the lungs. In fact, oftentimes tuberculous peritonitis of the pelvic organs seem to render an immunity to the diseases elsewhere, according to Osler and Kelly (I do not personally, fully concur with this opinion).

I am quite sure this is a trouble that is often times overlooked and mistaken by doctors, from the peculiarity and irregularity of symptoms in given cases; that is, sometimes mistaken for typhoid fever, malarial fever, puerperal sepsis, and in some cases for tuberculous meningitis (in the very acute cases). In the beginning it is in some cases very difficult to diagnose. In some it may begin suddenly with high and irregular fever, while in others its onset may be slow and insidious, with a general malaise with headache, thirst, insomnia may be present, night sweats, loss of appetite with more or less gastric disturbance, vomiting, bowels irregular, some are constipated, others have diarrhœa, or an alternation, of one and then the other. Next follows pain in the abdomen or pelvis (depending on location of part involved) increased by exertion, or it may be only a feeling of weight or pressure, exciting pain upon moving; it is rather rare to have much pain in the early stage of the disease. The temperature usually is irregular, from 100 to 104 deg. Fahr., remitting or intermitting and in some continuous, may have chills or chilly sensation, followed by sweats.

It may begin after confinement or miscarriage, with chill or rigor with variable temperature with sweats. In others the temperature after being normal for some time suddenly rises in the evening and assumes a hectic type, in most cases except in the acute stage; the patients are able to get about at intervals; at times may give up on account of general weakness and discomfort. After weeks or months of these remissions and exacerbations the patient is compelled to give up entirely on account of increasing debility, pain, swelling of abdomen, usually containing fluid and possible tumifaction due to adhesion, etc., with shortness of breath. As the disease advances there is a rapid increase in malnutrition and emaciation, the skin becomes pale and sallow and dry, alternating with hectic flush, cheeks sunk in. From the above line of symptoms at some stage of the disease it could be mistaken for typhoid fever, malarial, or puerperal fever, as well as for ulcer of intestines, malignant growth (peritoneal cancer) chronic peritonitis. The chief points upon which to base a diagnosis as given by Kelly are:

1st. Often a sudden onset, it may be after pregnancy or miscarriage.

2nd. A history of chills or fever or "malaria," but without the plasmodium, sometime the stage of invasion is put down as "typhoid fever."

3rd. Gradual increase in swelling, termination in a marked enlargement of the abdomen.

4th. More or less constant abdominal pain increased by walking.

5th. Pain upon urinating.

6th. Pelvic masses which cannot be distinctly outlined, either by palpation or percussion: there is something puzzling and peculiar about the relations of the masses to the pelvic and abdominal organs.

7th. Apparent change in the position of the masses in the abdomen noted at subsequent examinations.

8th. Great tenderness on pressure at the vaginal vault and over the lower abdomen, the liver and spleen, as well.

9th. Sometimes an enlarged uterus.

10th. Evidences of an encysted peritonitis.

11th. Emaciation-tuberculous facies.

12th. Slight persistent evening rise of temperature, often with sub-normal morning temperature, lasting for weeks or months.

13. The discovery of the tuberculous bacilli in vaginal or uterine secretions (or scrapings). When a diagnosis has been made then arises the question of treatment. Some of these cases undoubtedly improve and recover spontaneously without any medical assistance other than general hygienic and diatetic measures; on the other hand a large number either die or become chronic invalids; and resist all medical agencies. The ideal manner of dealing with them, is to operate, "with timely treatment all cases originating in the pelvis," and most of those in the abdomen may be cured. "When seemingly hopeless cases, apparently in the last stages will recover after operation, only those should be abandoned as hopeless when the patient seems to be actually dying, or where there is such an extreme state of prostration and exhaustion, without marked effusion in the abdomen that the attempt to remove adhesions would be manifestly fatal within a short while. The curability of the disease by operation is abundantly demonstrated by the experience of such men as Kelly, Halstead, Deaver, Price, Murphy, Cheyne, and Burghard, of London, and others too numerous to mention.

Why the good results are obtained by simple laparotomy is unknown. It suffices to say to simply open and evacuate the fluid, if any present, wash out and let air and light in does good, the results of which are very, very considerable, according to the type of disease present. All types may improve and most of them get well by it. The greatest improvement is procured in cases where there is free fluid in the cavity,

but improvement also is great when but little or no fluid is present.

When to operate. The most suitable time to operate, as suggested by Cheyne and Burghard, "unless improvement follows medical treatment within four or six weeks in acute, or four or six months in chronic ones," the abdomen should be opened, whether fluid be present or not. The operation may do good when it is least expected to do so, and in any case the patient should not be allowed to go down hill too far before doing so. On the other hand it does not do so well to operate too soon for fear of recurrence, which will be the case (strange to say) in some cases. Unless there be evidences of complete obstruction of the bowel by adhesion, etc., the abdomen should be opened early, or at once, with the view of making a short circuit, or even if possible remove the diseased portions of intestines or other primary seat of disease, the latter is a very important question as to whether the primary focus should be searched for or removed. This, however, should depend on the condition of the patient and the extent of the diseased area.

Theoretically it would appear that the primary focus should be removed. Experience has shown that in suitable cases, if seen early by the surgeon, the best results have followed this practice. On the other hand, if the disease is very extensive, as often is the case, in the majority of cases which are referred to the surgeon, then the question becomes much more complex. As a result of what has been done in these cases, we would formulate the following opinion: When the tuberculous disease is definitely located in a small area surrounding the primary focus, when only a small portion (a few coils) of the bowel in the region of an intestinal ulcer or appendix, or tube, or when there is only a beginning eruption of tubercles without extensive adhesions, I think undoubtedly that the primary focus should be removed by resection of bowel, removal of appendix or tubes. The results

thus obtained are far better than simple laparotomy; provided, the strength and vitality of the patient will admit. In some cases, those far advanced where very great and dense adhesions are present, it is exceedingly difficult to locate the primary focus and to remove it when found, owing to the extreme fragile condition of the tuberculous bowel, as they tear very easily and may establish a faecal fistula or a fatal perforation by attempting to remove them. In these cases, however, they generally run down and cannot stand prolonged operation, then we should do a simple laparotomy unless the prime focus can be very easily and quickly reached and removed.

Case I.—Miss W. M., aged 17, had never menstruated. Family history negative as to immediate family, but some tuberculous tendency in mother's family. As a child she enjoyed usual good health up to the age of 10 or 12 when she became delicate, subject to recurrent attacks, called by attending physicians malarial fever; had recurring spells of fever, was very obstinately constipated, complained of pain in abdomen. Was called to see her March, 1896. From the remitting character of the fever and other symptoms, I thought it to be malaria at first, and began treating her for same. I soon located a tenderness in right iliac fossæ at McBurney's point with a slight tumor, at that point, extreme tympany and enlargement of abdomen; circulation rather rapid, 90 to 95; temperature ranging from 99 to 103 every other day. It occurred to me the possibility of appendicitis, but under symptomatic treatment it passed off. In May I was again summoned to see her. I found her similarly affected; put her on similar treatment with the same result as before. Again in July she had another attack much more severe. Up to this time I had not disclosed my opinion as to previous attacks, but at this time I told the family she had appendicitis, and had had two previous attacks, I thought, but I did not care to alarm them until it became necessary, in my judg-

ment, to take a more serious step—that of surgical procedure. The family refused having this done until late in the fall. The patient made little or no improvement; in fact, grew worse and finally their consent for an operation was procured. She was admitted to my private house and operated on November 9th. There was a tumor about the size of a cocoanut in the right iliac fossæ. An oblique incision about four inches long was made just at McBurney's point. Expected on entering the abdominal cavity to find a considerable sac of pus. On the contrary found a perfect mass of adhesions, the small bowels adhered to ascending colon to posterior wall, appendix bound down. The peritoneum and bowels were studded with numberless tuberculous nodules, the adherent mass forming the tumor, thought to be a pus sac. With much difficulty the adhesions were broken up, appendix ligated and removed. (It was found to be about 2½ inches long and the usual size, with no disease otherwise than the tuberculous condition.) The abdominal cavity was thoroughly flushed out with gallons of warm normal saline solution and thoroughly dusted with iodoform (between one-half and one ounce used), cavity drained; incision was closed and usual aseptic dressing applied; uninterrupted recovery. There had been, prior to operation, local tuberculous manifestations, such as suppuration of the glands of the neck. For several weeks after operation there appeared several spots of lupus, which were curetted and dressed in the usual way. The patient was put on cod liver oil, syr. iodide iron, and Fowler's solution, being somewhat depleted in general health. Later she was given creosote, 3 to 25m ter die, which completely overcame the constipation. She is now (eight years after operation) in perfect health, better than since she was a child.

Case II.—Annie H., white, age 17. Health very good until she began to menstruate, at which time she suffered from dysmenorrhœa (very severe), then was troubled with menorrhagia and metrorrhagia, increasing, to the point of

being alarming, from which she became very anæmic and prostrated. Her mother suffered likewise, went unattended; she developed pulmonary and intestinal tuberculosis and died at the age of 28. My diagnosis of the girl was tuberculous endometritis, with stenosis, for which I dilated and thoroughly curetted, from which she recovered and got on very well for two years, except some tenderness in both tubes and ovaries, with some induration or thickening about the tubes. Two years after the above treatment she began with slow fever, ranging from 100 to 103, somewhat irregular, loss of appetite, constipated, bowels irregular, then diarrhoea, increasing pain and tenderness in lower part of abdomen and pelvis not localized, some enlargement, no fluctuation, no tumorfaction or mass perceptible, tongue flabby and white, no red base with rapid emaciation. At first I thought it typhoid fever. After two weeks systematic treatment, no improvement, but rather growing worse. Being guided by error in diagnosis in case No. 1, and with former history and that of mother, I concluded it to be a case of tuberculous peritonitis, and advised operation. After some hesitation and deliberation the consent of patient and family were procured. Upon opening the abdomen, in medium line below umbilicus found diagnosis correct. The appendix and both tubes and ovaries were removed, some adhesion which were carefully broken up, cavity flushed out with normal sol. closed in usual way without drainage. Recovery uneventful and rapid; five and one-half years later health perfectly good, gained 18 to 20 pounds in weight.

Case III.—George McK., colored, age 45. Previous health good. Was taken latter part of May with fever running a course simulating the unclassified types of fever we often meet with, neither distinctively typhoid, or malaria. For about two weeks quinine or any other treatment had no effect, other than temporary. For two weeks it looked more like typhoid, then it ran a course of two or three weeks resemb-

ling malaria in its periodicity, would not yield to treatment for malarial, nor could plasmodium be found. By this time, or at the end of four or five weeks, there developed a very decided pain and tenderness throughout the abdomen with swelling, later fluctuation; I asperated and drew off about three pints of fluid, did not look like ascitic fluid. By this time I diagnosed tuberculous peritonitis and advised operation which was refused at first; all the symptoms periodically continued, with rapid and progressive emaciation until six or eight weeks later, when a laparotomy was done (post-mortem), however, this served the purpose of confirming the diagnosis, and had it been done when first advised I have no doubt in my mind but that he would have gotten well.

Case IV.—Mary L., colored, age 32. Married fourteen years without issue. Previous health up to one year before I saw her good; family history good, especially so as to tuberculosis. About ten months before this illness she had an attack. From her description I inferred it to have been one of appendicitis. She was taken with the attack in question with a hard chill, followed by high fever, 105, after profuse sweating with great pain throughout the abdomen and pelvis. Her condition was such as to warrant the conclusion that she had had a congestive chill, living in a malarial district. I gave large doses of calomel, etc., with very large doses of quinine, 60 to 80 grains in twenty-four hours. This continued for three days, she had either a chill or chilly sensation with fever, from 100 to 104 every day with night sweats for five or six days with considerable pain and tenderness through cavities, drifting into what is called typhoid state, which continued for several weeks. Finally I concluded it to be tuberculous peritonitis by exclusion; advised operation; was granted. Upon opening abdomen found it containing some fluid. The tubes, appendix, coecum, illium and the entire omentum lower margin was involved with the disease, being crimpled like parchment that had been burned around

lower margin. This has caused a ridge around the abdomen about half way between umbilicus and pubis. This was all ligated and trimmed off, appendix and right ovary removed, cavity flushed out with warm saline solution, dried with aseptic gauze and abdomen closed without drainage; recovery rapid and complete. Three years later health perfect.

Case V.—Mrs. M. R., age 33, white. Family history good; mother of six children; health very good, up until about two years before last sickness. I was called to see her fourteen days after confinement, having been attended by midwife. I found her with a temperature of 105, pulse 120, having that a. m. had a hard chill, tenderness over entire abdomen and pelvis, followed by profuse sweats. I at once concluded there was a retained blood clot or placental tissue. Without delay, with a blunt curette irrigated the uterus and swabbed out with iodine and carbolic acid, after which the temperature went down to 99 to 100 and continued for some four or five days, then came to normal. For some weeks then there would be a slight rise of evening temperature, normal in morning. With remissions and exacerberations of fever, little or no appetite, bowels irregular, with slowly progressive emaciation. I was trumped as to what was doing all this. I then procured this history: about, or nearly a year before the beginning of last pregnancy she began to fail in health, had at times fever, so they thought, with spells of diarrhœa, with soreness throughout the abdomen and pelvis, complained of great weakness and throughout the gestation was weak and debilitated and complained more or less all the while and had spells of fever, swelling of abdomen and soreness in bowels and would run off and at times passed matter "like a bile had busted," as she described it, there was a hard circular ridge extending from one anterior spine to the other across below umbilicus. Not being able to clear up in my mind as to what was the cause of her trouble, finally concluded it to be tuberculous peritonitis; advised operation; after several weeks delibera-

tion no improvement; finally decided to operate. Upon opening the abdomen found some fluid and the entire omentum intestines were covered with tubercles, thousands, I suppose, of tuberculous nodules, some adhesions which were broken up, the omentum largely destroyed. I simply opened, broke up slight adhesions. Was rather afraid to look for the primary focus; simply washed out with saline sol., closed without drainage. She made a very rapid and complete recovery and was well four years later.

Case VI.—Mrs. R. L., aged 38. Mother of nine children. Was called to see her April 22, 1903. Found her to be about six months pregnant, with a very profuse diarrhoea, with some fever, 102 deg. F., with a history of having had for nearly two years recurring spells of diarrhoea, followed with constipation with abdominal pains; was greatly emaciated. I had her under observation for several months, I occasionally gave her a dose of castor oil with the usual remedies for diarrhoea, keeping it in check the best I could until she was delivered, fearing she would not live through gestation. She would have at times chills or chilly sensations, followed with fever from 100 to 103. Microscopic examination revealed the presence of the tuberculous bacilli. On July 26 I was called to attend her in confinement. Upon my arrival I found the head protruding through the vulva; I supported the perineum; delivery was complete in a few moments by slight traction on cord with compression on fundus; the placenta was delivered without the introduction of hand into the vulva. The child was a very stromous delicate one and died a few weeks later. On August 10th I was called to see her. Being out of town two other doctors saw her, they both without examination or inquiring into history pronounced it *"puripel septis,"* doing but little or nothing, left her. I was called upon my return, August 12, found she had had some chills or chilly sensations with fever (as she had been having) with profuse sweating, diarrhoea as she had had for months, with tenderness all over the abdomen, not localized except just

below the spleen or descending colon. I, with the aid of a trained nurse, to be sure of the possibility of there being retained secundies or blood clots in uterus, curetted with blunt curette; found nothing in the uterus, no odor, the uterus was normal, as could be expected. I treated her symptomatically for several weeks. She would have chilly sensations with remission and exacerbations of fever. Some times she would go ten and twelve days without a particle of fever, then have fever for several days, running from 100 to 104 deg. I urged her going to hospital from the first for treatment, without avail, until September 26th consented she went to hospital. I suggested as a last resort a laparotomy, my diagnosis being tuberculous peritonitis. She being unable to pay her hospital fees was compelled to go in ward under the care of the doctor on the ward for that month. He with others diagnosed the case to be one of puripel sepsis, sent her home in a week or so to die, which she did some ten or twelve days later, with all the symptoms of intestinal tuberculosis. The question has often arisen in my mind, if a laparotomy had been done and the tuberculous focus removed, if she would have lived or not, for I am confident her's to be a case of tuberculous peritonitis followed by intestinal tuberculosis.

Adenoids in Children—A Plea for Early Recognition and Treatment.

BY R. J. TEAGUE, M.D., ROXBORO, N. C.

Mr. President:—My apology for presenting the subject of adenoids in children is the realization of the fact that there is no pathalogical condition met with in childhood that causes as much suffering and misery as enlarged adenoids, and at the same time it is the most neglected. Osler says, that in spite of the thorough ventilation of the subject by specialists, practitioners do not appear to have grasped, as yet, the full importance of this disease. It is a subject which should interest the general practitioner as much, or even more, than the specialist, as it is he who is first consulted.

We are indebted to Wilhelm Meyer, of Copenhagen, for having first brought the subject, in its clinical and pathalogical aspects, before the medical world, in 1868. Holt says, that the enlarged adenoid is the source of more discomfort and the origin of more minor ailments than any other pathalogical condition in childhood. In order to better understand the pathological conditions attending enlarged adenoids, we should not lose sight of the fact that the mucous membranes of the Eustachian tubes and middle ear, the mucous membranes of the nose and pharynx, are all continuous with the post nasal space. Normally there are groups of lymphoid tissues or glands in the vault and posterior wall of the pharynx. This embryonic or lymphoid tissue is excited to hypertrophy under slight irritation during childhood. It may consist "of one large mass with broad base completely filling up the vault of the pharynx, rendering nasal respiration impossible, and by pressing on one or both Eustachian tubes interferes with hearing; or, in other cases the growth may extend down the posterior wall of the pharynx, to such an extent as to be seen when the tongue is depressed, or the palate is retracted. In young children the tissue is usually

soft and friable, very vascular and spongy, easily breaks down and bleeds freely. In older children and adults it is apt to be harder and fibrous. In some instances they are lobulated and warty in appearance, quite friable and easily removed. While on the other hand the fibrous variety is firm in texture, has a stronger attachment and is removed with more or less difficulty. Chronic hypertrophic rhinitis, follicular pharyngitis and chronic enlargement of the faucial tonsils are intimately and almost invariably associated with cases of enlarged adenoids.

Etiology.—That condition known as lymphatism or lymphatic diathesis is responsible for most cases of adenoids. In many instances it seems to be hereditary. In some families every member, including father and mother, have enlarged adenoids. Delicate and rachitic children are more disposed to have it. Children of consumptive parents are especially liable. It is more prevalent in a cold, damp, changeable climate. It sometimes follows measles, diphtheria, and scarlet fever. Influenza is a fruitful source, and oft repeated ordinary coryza sometimes causes it, and in other cases is caused by it. Some cases are congenital, and most cases begin to show symptoms about the second year of life, though no age is exempt. Many cases begin to show symptoms about puberty, while many others begin to atrophy and pass away at this age, and in nearly every case they leave the mucous membranes of the pharynx naso-pharynx, Eustachian tube and the nose, in a crippled and abnormal condition, in which condition treatment can at best only palliate. Adenoids in adults is more frequently met with than is generally supposed. I have had in my limited practice quite a number of adult patients, in some of whom the growth was so large as to completely fill up the naso-pharynx, rendering normal respiration impossible. According to some observers it is more commonly met with in females. The Jewish people are peculiarly liable to it.

Symptoms.—Adenoid subjects do not, as a rule, breathe well through their nose. In many nasal respiration is impossible. They are known as mouth-breathers. The voice is changed in character and becomes the nasal or wooden voice, as it is called. There is an inability to pronounce the nasal consonants "M and N." Stuttering is frequently observed. In the very young the symptoms are more of a chronic catarrhal nature, with a constant discharge from the nose. In older ones it is more of the obstructed variety. One of the most characteristic and at the same time striking objective symptoms of adenoids is the facial expression, the mouth is opened and the cheek flattened, the bridge of the nose is wide and flat, the inner canthi are pulled down and the eyelids are drooped. The root of the nose is puffy and oedematous. The face has a stupid and sad expression which no other form of nasal stenosis gives rise to. The pharynx may have a nodular appearance, and in chronic cases there may be a dry form of pharyngitis (pharyngitis sicca) due to the fact that the air is not properly warmed, moistened and filtered, and consequently it abstracts moisture from the mucous membrane of the pharynx. The constant irritation of which causes dry catarrh. Mental dullness is in most cases well marked. Children cannot, in this condition, concentrate their minds, they learn slowly. In cases of long standing they are as dull and idiotic as they look. The eyes are dull and expressionless. This condition is in part due to sluggish, lymph circulation in the base of the brain, nocturnal enuresis is very often associated with post nasal obstruction.

The sleep is disturbed, the child breathes through the mouth and snores, rolls and tosses in bed, the throat becomes dry, the child wakes up and calls for water. Night terrors are common and many nervous phenomena manifest themselves, such as laryngismus stridulous, asthma and mild convulsions in some cases. The child awakes in the morning dull and unrefreshed, but brightens up as the day advances. Very often there is a dry, hacking, troublesome cough, which

does not yield to medication. Chorea is a frequent symptom of adenoids. Some of the most important and at the same time most common symptoms are ear troubles of various kinds. In Swinburns' clinic twenty-seven per cent had middle ear disease. Wokes thinks that in England twenty per cent had diseases of the ear. Meyer in his original one hundred and two cases found that seventy per cent had aural complications. I think a conservative estimate in this country is sixty per cent of all persons who have enlarged adenoids have more or less interference with hearing. The oft-repeated ear-aches of childhood means adenoids pressing on the Eustachian tubes in most cases. Bacon, one of the best otologists in this country, says, that acute catarrhal otitis media is often due to enlarged adenoids. A very large per cent of deaf mutes have adenoids. In many instances we find perforated or retracted drums in children which shows that the middle ear has shared in the pathalogical process. A much larger number of cases of meningitis have their origin in chronic suppurative otitis media than is generally supposed. From the middle ear the infection passes to the mastoid cells, causing acute mastoiditis and abscesses, or a chronic suppurative process is established which finally passes to the brain causing meningitis, abscess, and death.

For the purpose of this paper we will say that the functions of the nose is respiration. First, a passage way for the air in breathing. Second, warming, moistening, and filtering the inspired air. Normal respiration should take place through the nose. It has been proven that the air in normal respiration passes directly upward from the nostrils to the superior meatuses, whence it falls toward the choana or posterior opening of the nose into the pharynx. The main currents of the air pass into the naso-pharynx at the highest choanal arches, or superior meatuses, to a less degree in the middle, and still less in the inferior meatuses. Thus we see that a small enlargement of the adenoid tissue even slightly encroaching upon these openings interferes with normal respira-

tion. The interior of the nose is completely lined with mucous membrane richly supplied with blood vessels, especially the lower and the posterior ends of all the turbinals, a part of whose function it is to warm and moisten the air. When the temperature is cold the turbinal swells, the vascular tissue is filled with warm blood which raises the cold air to a higher degree of temperature.

According to some observers the inspired air receives from twenty to forty degrees of heat and becomes nearly saturated with moisture in its passage through the nose. It is thus rendered suitable for the interchange of oxygen and carbonic acid gas in the lungs. The conditions are present for a perfect osmosis, a warm fluid on one side of a membrane and warm, moist air on the other. Bosworth has calculated that about a pint of water is secreted by the structures entering into the nose together with the tears in twenty-four hours for the purpose of moistening the inspired air. The functions of the nose in filtering out germs and dust is almost perfect, which is a great protection to the delicate pulmonary alveola.

Let us look for a moment at the effect of impaired nasal respiration. The air improperly warmed, moistened, and filtered, passes into the lower air tract. The mucous membranes of the larynx, trachæ and bronchi, are irritated and manifest a catarrhal tendency. The epithelial cells lining the air vesicles (normally only one layer) becomes irritated also. The cells at first swell and then pile up until the lining is from two to twelve layers deep. The truthfulness of this statement has been demonstrated by Ballenger, of Chicago, by microscopic examination of air vesicles of guinea pigs that had breathed for a long time, dry dust-ladened atmosphere. Because of this thickening a deficient amount of oxygen is absorbed by the blood. Faulty oxygenation of the tissues results and uric acid is freely formed and circulates through the system. The thickened vesicle walls prevents or retards the proper elimination of carbonic acid gas and other waste products, and allows it to accumulate in the blood in

excess. When it is thus in excess it poisons the leucocytes and thereby impairs their functions.

If we but pause and think for a moment we shall readily understand why these children are so poorly developed, why they have barrel-shaped chests and pigeon breasts; why they have chronic naso-pharyngeal catarrhs; why they have chronic bronchitis; why they fall a prey so readily to disease; why they later in life make up such a large per cent of those who fill the consumptives' grave. And let me say right here that by early removal the child will be born anew, as it were, and put in the best condition, other surroundings being equal, for a perfect physical development and go a long way towards eradicating the dread disease, consumption, of which so much is being said and written about preventive measures, isolation, etc. My plea is to put these children in a position to let nature fight their battles for them, and with a perfect physical development stamp out as far as may be these predisposing factors.

As previously stated, hypertrophy of the turbinals and tonsils are intimately associated with enlarged adenoids. The abnormal tissues furnish a lodgment and a good culture field for germs of various kinds which readily pass into the Eustachian tubes, thence into the middle ear and mastoid cells. In the nasal chambers they may pass into the various accessory sinuses causing antrum abscess, ethmoid and frontal sinus disease with all the consequences attending those pathological conditions, rendering the patient's life miserable.

The enlarged adenoid presses upon the Eustachian tube interfering with the proper ventilation of the tube and tympanic cavity. The retained air becomes rarified and finally absorbed. This condition produces hyperemia which ends in suppuration, middle ear abscess, or a chronic catarrhal condition with thickened mucous membranes which finally obeys the inevitable law governing all such pathological conditions, namely, shrinking and contracting of the thickened membrane. Then we have following in the wake of this pro-

cess a thin, white and retracted drum membrane. The ossicles are bound down more or less firmly. The mucous membrane of the ear shares in the process as does that also of the Eustachan tube. The ear is robbed of its normal ecretion. Tinnitus is sometimes present to a distressing degree, and permanent dullness of hearing results.

It may require several years to complete this picture, but in the great majority of these cases we have warning in time to prevent this condition, in the repeated head colds and earaches of children, which unfortunately is looked upon by the family and sometimes by the physician as a necessary evil of childhood, but if rightly interpreted, is a call for the removal of the offending adenoid which is pressing upon the Eustachian tube. I also believe the above pathological condition is directly responsible for most cases of atrophic rhinitis.

Diagnosis.—Now a few words in regard to diagnosis and I pass on to treatment. In older children it is readily made with the rhinoscopic mirror. In children under fourteen years of age, it is best done with the index finger when the location and size of the vegetations can be readily mapped out. The finger should be protected by a metal shield or a turn or two of adhesive plaster to prevent chafing the fingers against the child's teeth. In nervous and excitable children it is sometimes best to anesthetize them.

Treatment.—As I have already taken up so much of your valuable time I shall speak of treatment in a general way and refer you to your works on surgery for the minor details and technique of the operation. In my opinion the only treatment worthy of the name is early, thorough, and complete removal, before the chronic pathalogical processes in the adenoid and surrounding tissues have commenced, as then any line of treatment will be only pallative at best. The position of the patient is largely one of personal preference. In small children I prefer them lying on the back with the head hanging over the edge of a table supported in the hands of an

assistant. By this position blood does not enter the windpipe. A mouth-gag is placed in the left side of the mouth. The index finger of the right hand is passed up behind the soft palate into the vault of the pharynx, and the location and size of the vegetation is thus mapped out. A Gottstines' curette is inserted sidewise, rotated and elevated, then make a single sweep from before backward well down on the posterior pharyngeal wall. Then similar strokes are made on either side, being careful not to wound the Eustachin tubes. The curette should be carried well up close to the choanal opening so as to leave no fragments of tissue in this region. The index finger is again inserted and with the finger nail breaks down remaining fragments of the adenoid tissue. The throat should be well mopped or sponged out and the patient kept in bed for two or three days. For these children primary ether anesthesia is best and safest. For large children and adults, the upright or sitting position, and cocaine anesthesia is preferable. After treatment is very little. Occasionally sponge the throat out and spray the nose and throat with Dobell's or other antiseptic solutions. Plenty of fresh air with the syrup of the iodide of iron and cod liver oil should be given in all cases. Bleeding is often very profuse for a few seconds, but in most cases it stops readily. If it persists rhinopharynx may be packed with strips of gauze soaked in peroxide of hydrogen. The operation should be done whenever nasal respiration is interfered with or ear symptoms are developed, before chronic changes in the tissue commences, as then treatment cannot eradicate but only palliate, and the patient will go through life with a post-nasal catarrh, or some other pathological condition of the organs of respiration or of hearing. Sometime they recur and require removal the second time. One contra-indication for operation is acute inflammation of the middle ear. The operation should be deferred until acute symptoms have subsided. Now, gentlemen, without taking more of your valuable time, let me say

inclusive that philanthropists have given money and have erected institutions all over our land for the treatment of those unfortunates—the consumptives; some of the best physicians of the country have given their substance, and time and talent chasing the microbe in the laboratory, in the hope of recovering serum germ; germ destroyer, a panacea for that dread disease. How near to that goal we shall have reached, time only will tell. When the medical profession realizes the great and solemn responsibility resting upon it, and its duty is faithfully and scientifically performed; when every physician treats those unfortunate children, the rachitic and the lymphatic mouth-breather as they should, scrapes out the adenoid, straightens the deviated septum, and shrinks the hypertrophied turbinal and restores normal respiration, so that the little unfortunates can drink in Nature's own remedy and tissue-builder in the way and manner that the Creator intended; then will the hospitals and institutions for the care of the unfortunate deaf and dumb have fewer inmates, and the grave will have been robbed of many of the victims of meningitis and abscess of the brain, and the great white plague, the scourge of the human race, consumption, will have fewer numbers; and the medical man will have for his reward the consciousness of duty well performed, of precious lives saved, and the everlasting gratitude of an appreciative clienicle.

Some Uses and Abuses of Glasses.

BY R. V. BRAWLEY, M.D., SALISBURY, N. C.

Every one objects to putting on glasses and postpones the evil day as long as possible. A man says they are a nuisance and doesn't want to be bothered with them. He heartily avers that he sees well and his eyes are perfect. A woman also says they are a nuisance and that she has tried all kinds but can see better without them than with them; and, besides, they don't look well on her. But glasses are worn more nowadays than formerly, and we are often asked for an explanation. The accusation is often made also that oculists give children glasses when it isn't necessary; that children never used to wear glasses as they do now, and they got along just as well. More children do wear glasses than formerly and the result is less serious trouble with the eyes of grown up children. How less common do you see crossed eyes to-day than formerly. Seventy-five years ago nothing was done for their relief; then operation became common and helped the situation slightly. Now nine-tenths of the incipient cases of cross eyes are cured by the use of glasses, if skillfully fitted. We know now that nervousness, dizziness, insomnia, neuralgia, indigestion, and possibly graver affections, are due to the eye strain, at least, that this will act as an exciting cause where there are is any predisposition to such disorders. The intelligent and conscientious physician is no longer satisfied with giving anodynes to little or no purpose in protracted or recurring headaches, knowing that their more frequent cause is eye strain, easily remedied by glasses correcting refractive errors or lightening the burdens of weak muscles. We have learned to recognize these eye affections and their numerous effects as we could not in former times; and the importance of correcting with absolute accuracy and existing error of refraction has long since become a truth too evident to require demonstration. However, I shall mention in as simple and

brief manner as I can some of the different conditions of the refractive apparatus of eyes that constitute weakness and require glasses for their correction.

The eyeball may be too short or too long to form a perfect image on the retina; or the cornea may be abnormally curved, producing distortion and disproportion of the image. These three errors of the refractive apparatus of eyes are susceptible of many different degrees and varieties of combinations, and when either exists it places the eye at a corresponding disadvantage and precipitates sooner or later a failure of clear and comfortable vision.

When the normal eye looks at objects more distant than twenty feet, the rays of light from that object travel parallel and are brought to a focus on the retina, producing a clear image without any effort on the part of the refractive apparatus; but, if the object is nearer than twenty feet, rays of light emerging from it diverge and will not be focused on the retina of a normal eye without the aid of accommodation, and the nearer the object is brought the more accommodation will be necessary. This accommodation, as we know, is accomplished by a change of shape in the crystalline lens, brought about by the contraction of the ciliary muscle.

Associated with this power of accommodation is convergence, or the act of directing the visual axes of the two eyes to one object, so that the image may be focused on the macula of each eye.

In myopia, or near-sightedness, the antero-posterior diameter of the eyeball is too long, and the rays of light come to a focus in front of the retina; we therefore have no need for accommodation and, if its fellow eye has the same degree of lengthening no evil reflex trouble results. But the patient is at a disadvantage in not being able to see well at a distance. He fails to take proper exercise and on account of his indoor life seeks occupation and amusement within his own limited circle of vision, and, unfortunately, herein lies his greater danger. By holding his books and implements close to his

eyes, he is able to see distinctly, but in so doing he strains his power of convergence excessively, producing ocular congestion and compression of the eyeball; and by bending over he affords a favorable position for the distension of the ocular veins. The coats of the eyeball already of weakened resistance and put upon the stretch are further pulled and damaged; the nutrition of the eye is seriously disturbed, and, as a result, the choroid becomes diseased and this causes associate retinal changes and viteous opacities, resulting in almost complete blindness. If proper glasses are prescribed early and worn constantly myopia is not liable to progress and will remain more or less stationary throughout adult life.

The hypermetropic, or far-sighted eye, by reason of its antero-posterior shortening, is unable to focus rays of light upon the retina, and accordingly, accommodation is necessary to see objects at any distance distinctly. Such an eye is using its accommodation constantly; even distant vision, which in the perfect eye is a passive sensation consistent with entire rest of the organ, requires an effort; and the work of the ciliary muscle is necessarily much greater when near objects are to be seen. If additional demands are made upon the accommodation, as for continuous reading, writing or sewing, the muscle is found unequal to the task and pain is felt not only in the eyes and head but reflex symptoms in almost any part of the body. By means of this accommodative effort hyperopia, up to a certain point, varying with each individual, is involuntarily corrected. However, we can readily realize the result of a constant strain on this highly organized structure; nervous energy is consumed and the nervous equilibrium is disturbed, with the result, not only of annoying local symptoms of pain, fatigue and congestion, but more remote reflexes, such as headache, gastro-intestinal disturbances, and many general neurotic disorders. As the correcting effort of the ciliary muscle is involuntary, the resulting annoying symptoms can only be relieved by proper correction of the defect which necessitates the ciliary contraction. Very often

if a child is hyperopic to some extent and unequally in the two eyes, to avoid the discomfort of a blurred or double image, one eye is turned in and becomes amblyopic. It has been estimated that four-fifths of the cases of convergent squint are caused by hypermetropia. We, therefore, see how very important it is to examine carefully the refraction of an eye beginning to converge in a child.

Astigmatism, or malcurvature of the cornea, exists to some extent in the vast majority of eyes and most often with hyperopia or myopia. Over this defect the compensating mechanism has almost no power, for the muscle is constantly contracting unequally trying to correct the unequal meridians of curvature of the cornea, and in a spincter muscle like the ciliary muscle, two-sided action even of a lower power is, of course, essentially morbid. If there is an abnormality in the measurements of the eyeball as great as one-three-hundredths of an inch there is lack of a perfect image on the retina. To overcome this the eyes in hyperopia and astigmatism must struggle ceaselessly. Both retina and muscles are tired by this effort to focus; persistent innervation, coupled with abnormal action of the muscles is harmful and impossible. Such continuous and unequal accommodative effort must result in eye strain and consume much of the normal nervous energy, eventually producing reflex manifestations of disturbance of the nervous equilibrium. Therefore, an astigmatic or hyperopic person may be able to improve his vision at the expense of severe headaches, nausea, indigestion and inability to perform near work. Many of our ocular diseases, such as conjunctivitis, blepharitis, chalazions, styes, etc., are largely due to refractive errors, and when corrected by properly adjusted glasses, the cause being remedied, a cure is effected.

Not only must the eye be accurately focused in order that a perfect picture shall be formed on the retina, but the two eyes must maintain such a relation that this picture shall strike corresponding portions in each. This is accomplished

by the twelve small extra-ocular muscles, and from no other class of muscles is such perfect exactitude of service and nicely associated action so constantly required. When one contracts, another must relax, so that a perfect equipoise may be kept up at all times. This muscular balance is maintained by the constant and equally distributed innervation of the ocular muscles. During the working hours, all the muscles are in a state of unconscious contraction, and every act of sight is accomplished by more or less expenditure of nerve force. Any irregular action of these muscles is usually dependent upon some optical defect and the increased nerve impulses thrown out to bring about accommodation to correct the optical defect are, at the same time, sending an extra stimulus to the extra-ocular muscles. This necessary extra expenditure of nervous energy is a great factor in the causation of reflex symptoms resulting from eye strain.

Difficulties attending either one or both of these functions, or irritations arising from the nerves involved in these processes are among the most prolific sources of nervous disturbances, and more frequently than any other condition constitute a neuropathic tendency.

When we consider the complicated arrangement of the nerves of the iris and the ciliary processes and the unnatural and excessive effort that is put on the filaments of the nerves of accommodation, there can be no cause for wonder if in the course of time there is set up a reflex condition of the sympathetic system that will produce nervous symptoms varying in different individuals.

Having mentioned in a broad way some of the uses of glasses we must also keep in mind their abuses by almost any one who may choose to prescribe. It is a prevailing opinion of the public that fitting glasses is an easy matter, that those who choose may do so for their own financial benefit, notwithstanding the fact that they have never received a medical education nor any special preparation or experience in this line; many of them having only the faintest idea of the first princi-

ples of optics which alone make up a small part of the proper fitting of glasses. The glasses they furnish are injurious to the eyes of those wearing them; they think that all eyes with defective vision need glasses, fit patients with them when the defect is due to some pathological lesion.

Dr. Gould says "Every pair of lenses worn by every person in the world has a medical and pathological significance." Accepting this eminent authority on refraction and knowing that properly fitted glasses will improve the eye and health and relieve ocular symptoms and various reflex neuroses, is it not reasonable that improperly adjusted glasses will produce the same pathological conditions?

There is an intimate relationship between the practice of ocular refraction and physics but we must not regard the matter from a too mathematical point of view. We should consider our subjects as patients and not merely as possessors of optically imperfect eyes.

In the proper hands there is no one thing that relieves so much suffering as glasses. They give useful sight to countless numbers who were otherwise crippled by imperfect vision. Many who do not use them would be better off if they did, receiving the benefit of greater convenience in the increase of vision, greater safety to the eye, preserving it from those disastrous effects of strain, retinitis, choroiditis, glaucoma and cataract, and enabling little children handicapped by imperfect vision and unjustly condemned as being dull or inattentive, to compete successfully with their companions. They may not be becoming, but neither are headaches, bloodshot eyes, wrinkled eyebrows, half-closed lids or a squint.

As knowledge accumulates concerning the science of adapting lenses to the correction of nature's errors of refraction, the importance of consideration of the conditions involved in these errors are becoming more and more recognized and glasses will not be condemned as a nuisance or an evil but as a great means of relieving sufferers and increasing their usefulness in the world.

Abdominal Surgery with Special Reference to Preparation and After Treatment.

BY W. P. WHITTINGTON, M.D., ASHEVILLE, N. C.

Realizing the great responsibility which every surgeon assumes in opening the abdominal cavity, and having met and been puzzled by the conditions found and the results following such operation, and realizing the difficulty of preventing and relieving said conditions are my reasons for presenting this paper.

Having a patient suffering from any condition requiring that the abdomen be opened for the cure or removal of said condition, the first thing to do is to make a thorough examination of the patient's general condition. This examination should always be made with as much care and precision as the nature of the individual case will permit. We should carefully note the general appearance of the patient. The skin, eyes, nose, mouth, tongue fouces and throat should be inspected. The heart and lungs should be examined by auscultation and percussion. The stomach, liver and kidneys should be examined by percussion and palpation. The urine should be examined by chemical and microscopic methods, the character of the feces should be observed, and where there is any special indication the blood should be examined. Having by a careful and thorough examination ascertained the constitutional condition of the patient and obtained a knowledge of the condition of all the special organs, we may proceed with the preparation, according to the demands of the case. In emergencies where an early operation is necessary to save the life of the patient, we will be able to do nothing more than give a hurried purge or an enema, and proceed with the local preparation and operation; but even then, being familiar with all the existing conditions, we will be able to avoid the mishaps that unavoidably follow rushing into an operation without a thorough knowledge of the patient's condition. If the

case is not an emergency we should proceed with such treatment as is necessary to put our patient in the best possible condition to stand the operation. If the general health is bad and the circulation poor, a systemic and heart tonic for a few days will often put the patient in a better condition. If the patient is very obese and we expect to operate for hernia, or a chronic condition of any of the abdominal organs, we can put our patient in much better condition by giving such treatment as will reduce the obesity, and relieve the intra abdominal pressure. If the urine is not normal such treatment should be given as the condition indicates. Special attention should be given to the alimentary canal, and all food which has a tendency to form gasses, should be avoided. The digestion should be brought up to the best possible standard, and the excretory organs should be put in good condition by appropriate treatment. I do not believe in keeping the patient in long and unnecessary suspense by meddlesome treatment and foolish delay, no more than to rush into an operation without proper preparation. Where we have several days at our disposal, all plethoric or full habit patients should have a laxative every morning for a week before the operation. The three days immediately preceding the operation, patient should be allowed nothing but sterile food. On the morning of the day before the operation, two ounces of castor oil should be administered by the mouth. In the evening the patient should have a thorough tub or sponge bath, the field of operation and a wide area around it should be scrubbed with green soap and water with a brush, and carefully shaved, avoiding such violence as will cause abrasions of the skin. A green soap poultice should now be applied and allowed to remain for two hours. All the soap should be carefully washed off with a gauze and sterile water, and a gauze pad saturated with a 1-2000 solution of bichloride of mercury should be applied and should remain until the following morning. If the patient is a woman and there is a possibility

of opening the vagina for any purpose, the vagina should be douched with a 1-2000 bichloride solution once a day for several days, and on the evening before the operation the vulva should be included in the preparation of the site of operation as above. On the morning of the operation patient should have a large enema, which should be expelled as effectually as possible. The vagina should be well scrubbed with soap by means of a gauze in a sponge holder or dressing forceps, followed with sterile water and a 1-2000 bichloride solution. If the operation is to be on the walls of the stomach, or there is stercoraceous vomiting, the stomach should be thoroughly washed out with a boric acid solution on the morning before the operation. After the patient is on the table the pad should be removed and the abdomen again scrubbed with sterile water, sterile tincture of green soap or other sterile soap preparation, which should be again followed by sterile water with a gauze; ether, and lastly a 1-1000 bichloride solution. The catheter should be used a short time before all abdominal operations.

What I will say about the operation itself will be with reference to its results and its effect on the after treatment more than the operation itself. All abdominal work should be done with skill, dispatch, precision and gentleness, avoiding too much haste and roughness, but at the same time, avoiding criminal tediousness.

Do not waste too much time trying to stop trifling hemorrhage. Do not handle the intestines unnecessarily, nor manipulate organs not concerned in the operation. Do not allow assistants to handle the field of operation more than is absolutely necessary, as that would add just so many more chances for infection. When the operation is finished the wound should be closed or packed and drained as the conditions require, and dressing applied accordingly. The patient should then be put in a bed made comfortable by warm blankets, and hot water bottles applied if necessary, but overheating to such an extent as to produce exhausting prespiration should

be avoided. Patient should be allowed to assume the most comfortable position in bed possible, which should be left to his own inclinations. This will usually be found to be on the right side with the legs well drawn up. This position will be favorable to drainage in appendix and liver operations, but we will have to be careful when we have open wounds not well packed, for fear of protusion of the intestines. After operations on the pelvic organs, the best position will be on the back with the head of the bed slightly elevated. Even in these cases patient should be allowed to turn on either side if she becomes uncomfortable. The conditions naturally following laparotomies are nausea from the anaesthetic, pain, thirst, and sleeplessness. To prevent nausea the patient should be handled carefully when being removed to bed, and should be allowed to sleep quietly as long as inclined. Here the right side position favors drainage of the stomach and prevents vomiting. If on awakening, vomiting begins, patient should be given half pint of hot water in which has been dissolved twenty grains of bicarbonate of potassium. This will sometimes increase the nausea and cause free vomiting which will be of benefit by washing out any ether or other offensive material in the stomach, and the vomiting may cease. If the vomiting continues and there are no contra indications the patient may be propped up in the semi-sitting position which will sometimes be effectual. Three or four drops of tincture of iodine in half pint of hot water is sometimes very effectual. Small doses of morphia hypodermically will sometimes stop the vomiting quickly and permanently. Twenty to thirty grains of bromide of potassium in an enema of two ounces of water will often do good. Strong essence of peppermint on a lump of sugar may be slowly sucked. Counter irritations in the shape of cloths wrung out of very hot water, mustard or fly plasters are worth trying. In cases of very severe and persistent vomiting, a thorough lavage with warm water by means of a soft rubber tube will often be effectual. This should be continued until the water returns clear. If the

pain following operation is not relieved by position, a hypodermic of morphia should be given, preferring to give a small dose and repeat in an hour if not effectual. Morphia should not be given after the first twenty-four hours, except in extreme cases. Sleeplessness not due especially to pain should be relieved by six to ten grains each sulphonal and trional which may be repeated once or twice at intervals of two hours. Thirst may best be relieved by giving plenty of hot or cold water to which may be added a little bicarbonate of potash or soda. An enema of six to eight ounces, or as much as the bowels will retain of normal salt solution, is very useful in allaying thirst when water cannot be kept on the stomach.

If everything goes well, pain, thirst, nausea and restlessness should have passed off by the second day after the operation. We should now make an effort to get an action on the bowels by giving some mild laxative. As a rule I prefer half grain doses of calomel every half hour until four grains are taken or the bowels act. If this is not effectual and there are no contra indications I use an enema, and follow if necessary with sulphate or citrate of magnesia until the bowels act sufficiently. Food must be given cautiously, avoiding such things as cause flatulence, which is the chief objection to milk. Where this is the case, a good food is made by pouring boiling water on half its bulk of chopped raisins which should be stewed about two hours and filtered. This contains the highly nutritive properties of grape sugar and is readily absorbed as it requires no digestion. Egg-albumen is made by beating the white of four eggs with a pint of water, to which may be added sugar and lemon or other flavoring. Two pints of this may be taken in twenty-four hours. Plasmon is a pure albumen prepared from the caseinogen of milk, and is one of the best forms for administering proteids. It is a white powder and may be mixed with water in the proportion of three teaspoonfuls to the half pint of water, boiled for two minutes and given in portions of two ounces every two

hours. The plasmon or egg-albumen may be combined with the grape sugar in the form of raisin tea, and makes an excellent food for the first few days. It combines both proteids and corbohydrates in an easily digestible form. After three or four days food can be increased gradually as the condition allows. The complications following laparotomy and requiring special treatment are shock, meterism, peritonitis, stitch suppuration, intestinal obstruction, intestinal paresis, and fecal fistulæ. We recognize the fact that shock is a condition in which we have a more or less profound lowering of the general blood pressure. Whether the shock is the result of severe injury, prolonged operation or loss of blood is of little importance in dealing with individual cases. Shock due to hemorrhage will react best, while that due to prolonged operation, associated with injury of, or much handling of the abdominal organs will give less satisfactory results to treatment. In the treatment the patient should be kept warm by the application of blankets and hot water bottles, avoiding the extreme of causing active perspiration, which favors rather than relieves the shock. The foot of the bed should be raised a foot above the head, and there should be no pillow under the head. Stimulants should be used cautiously because to urge the heart to greater effort and rapidity of action without supplying it something to work on will only hasten the time of exhaustion. Where the shock is due to the vaso-mortor centers, and not to the loss of blood, stimulants may do good. Where the circulation is very poor, strychnia and digitalin should be given, but with caution, for fear of getting the accumulative effect after the shock has been relieved. Alcohol is of doubtful utility as it produces vaso-dilation and its effects are transient. If given at all it should be given in nutritive enemata or in saline transfusion. Rectal nutrient enemata containing forty grains of carbonate of ammonia are often beneficial. Adreneline will raise the blood pressure, but must be repeated at short intervals, as its effects are transient. It may be given hypodermically or added to the trans-

fusion fluid. The transfusion of normal saline solution is undoubtedly the best treatment for shock, especially where there has been considerable loss of blood. It will nearly always restore the general blood pressure, and give the heart something to expend its energies upon. The volume of circulation is increased in the large vessels and the heart quiets down and the patient is quickly revived.

The solution should be given at a temperature of 110 to 120 degrees, and two or three pints should be allowed to flow slowly into the circulation. This should be repeated at short intervals if necessary, until the blood pressure is sustained. If dyspnoae occurs during a transfusion it should be stopped until the dyspnoae disappears, when it should be continued slowly as before. Where the shock is slight, enemata of hot saline solution may be made use of or the fluid may be injected or allowed to flow by gravity into the tissues under the breats or on the back. If the shock is severe these methods should not be relied upon, as the absorption will be so slow as to be of little effect. Artificial respiration is often beneficial in giving time for other methods to have effect. Bandaging the lower extremities and abdomen or lower part of the body will force more blood to the heart and rapidly raise the blood pressure. Meteorismis one of the most dreaded complications following laparotomy. Whatever may be its cause our object must be to prevent its outset by appropriate means. One of the best means of accomplishing this end is the passing of a tube through the splincters into the rectum. This should remain in the bowels one hour in every six. It is a good plan, as soon as distention begins, to administer an enema of one ounce of turpentine to a pint of gruel. If this does not succeed a large enema of castor oil or sulphate of magnesia and glycerine should be given, and calomel, castor oil or sulphate of magnesia should be given by the mouth. The condition will often yield to these combined methods but in some cases it will not; and as a last resort the abdomen may be opened

and the bowels perforated with a possibility of restoring its normal condition.

Peritonitis being one of the most common causes of meteorism will require virtually the same treatment. Stitch abscess is sometimes due to too much tension. In this case the stitch should be divided, the pus should be removed and the suppuration, as well as the stitch itself, should be rendered as nearly aseptic as possible before it is removed. Sometimes stitch abscesses burrough far out between the abdominal layers and give considerable trouble. In these cases drainage should be made as free as possible, and sinuses not laid open may be injected with a 5% solution of carbolic acid, after which, if there is no foreign body in them, they will readily heal. If after free drainage and antiseptic treatment a sinus remains, it should be opened up to the bottom, any foreign body removed and all pyogenic membrane scraped away. Intestinal obstruction may complicate recovery from laparotomy and most frequently follows operations on the appendix or pelvic organs. It usually begins about five or six days after the operation, after the bowels have acted and everything seems to be getting on well. It generally begins with colicky pains, distension and nausea. The constipation is either complete from the beginning or may become so in a few hours. As soon as symptoms appear a large dose of epsom salts should be given. Turpentine enemata should be given and the salt repeated every two hours until purging begins or until it is evident that it will not.

The patient may be placed in the modified trendelenburg position with the hope that gravity will pull the intestine loose from its adhesions, or straighten out any kinks that may exist. Too much time should not be wasted and if these means fail, the abdomen should be opened and the obstruction removed by proper operation.

Paralysis of a section of intestine is rarely a cause of obstruction, and most often follows operation on the appendix or intestine itself. I have had only one case which followed

resection of fifteen inches of gangrenous intestine, caused by strangulated umbilical hernia. One of my colleagues had a case following operation for appendicitis in which there had been obstinate constipation and much vomiting. If the paralyzed portion of the intestine is very short and the patient is in good condition, the paralyzed portion may be resected. The better plan is to form a fecal fistula at the upper point of the paralysis, which will allow the bowel to regain its activity. If total obstruction persists after the patient's condition has sufficiently improved the abdomen should be reopened and the healthy intestine united at the most advantageous points. Fecal fistula usually close in a few weeks or months. Closure can be hastened by keeping patient in bed in such position as favors the passage of intestinal contents by the natural route. The opening of the skin should be kept well open to prevent pocketing. If the fistula does not close in about six months, or if the obstruction becomes so great that all the fecal material passes through the wound, the abdomen should be opened and the fistula closed or such anastomosis made as seems best.

Finally, when fully recovered, patient should be supplied with a proper abdominal bandage and allowed to get up.

The General Practitioner and the Question of Consumption.

BY PAUL PAQUIN, M.D., ASHEVILLE, N. C.

It is not necessary to present any of the countless existing statistics or data to demonstrate the fearful general slaughter of human beings by tuberculosis of various forms throughout the world. Every physician who reads and observes know that more millions are sent to their graves in a year by the germs of this disease alone than are killed by all the war dogs and all their ruthless instruments of death everywhere on earth in the same period. The laity also, here and there, realizes this awful fact, particularly among families where the malady has consigned some member to the earth, and in populous or resort centers where the affliction is observed more frequently.

Yet in many places the ravages of the disease do not receive the thoughtful, serious and methodical attention they should from the class of humanitarians most closely in touch with the people at the earliest development of the malady; that class which consists of the family physicians, the so-called general practitioners. They are the intimate counsellors of the people who know family histories. They are the advisors who see human life brought to light and who watch over the infants to childhood, maturity and death. They see first signs of health threatened by the scourge, they hear the first cough, they see the first blanching or blushing cheeks, they are notified of the first spitting of blood or hemorrhage, the irregular menses, the so-called "tired feelings," they observe early the scrofulous glands, hoarseness, adenitis. And still, with all those reminders of grave danger, how few of the victims escape the development of consumption to a serious and generally fatal issue? Is it not timely, then, to remark that many of the profession are not doing their full duty, not accomplishing the full object of the physician's

mission which is as much to prevent disease and suffering as it is to try and cure them? Doubtless no one fails purposely to give proper advice to prevent tuberculosis, but there is a general apathy towards the situation, and the profession accepts its perils and disasters seemingly as if they were decreed and ordered by the Infinite and beyond human power to control. While few family physicians in their hearts do not realize the coming of consumption in patients yet so early in the clutches of the germs that no one else has the slightest idea of it, many too often brush the thought from their minds and entertain the forlorn hope that perhaps nature will arrest the threatening process somehow. Later, perchance, the physician may give a tonic on general principles. A little longer and cough begins to show that there is something wrong. He may then thump the chest cursorily over the clothing, listen in the same unscientific manner to the breathing and will perhaps say, "Oh, there is nothing wrong with your lungs—only a little bronchial irritation." And he will prescribe a cough syrup, perhaps one that will mask the symptoms without attacking the cause, thus giving to the patient a sense of security which is false. Or if the physician is more methodically trained and habituated to make careful examinations and cautious diagnoses he may detect physical signs of danger but even then, too often alas, he makes light of the case, and acts with equal recklessness by not taking steps at once to give nature the best chance to cope with its invading enemies. What grand opportunities they have, these good, sincere, well-meaning men generally, to prevent sorrow and pain, save life and serve civilization in the most noble manner!

You may say that the position I take here is exaggerated. Not so. Physicians who practice in resorts can testify that in the histories given to them by the thousands sent there to recover lost health there is almost always indications of early neglected opportunities to arrest their trouble and to save others in the family.

You may say, also, as I have heard some physicians say,

"It is no use to try. Consumption cannot be stopped." I answer: "Have we not before our eyes, scattered throughout the land, in resorts and elsewhere innumerable men and women who in years past suffered from more or less pronounced phthisis and who seem well to-day? who at least live comfortably and fulfill their mission in life practically as if they had never been infected? Have we not nearly all seen tubercular scars in healed lungs on the dissecting tables?"

These facts cannot be successfully controverted. But even if they could, what right have we as men pledged to the duties of Esculapius to lay down our oars on account of the gravity of the obstacles in our path of labor to relieve humanity? Who shall say that, by dint of observation, research, trials of preventative measures at an early date there shall not be discovered a preventative remedy? In any event and whatever private, professional or public opinion may be held, one line of conduct is plain and incumbent upon every sane medical man—it is that he should on every proper occasion use his knowledge and experience to further the enforcement of domestic and public sanitary rules to prevent and arrest consumption. So long as the profession, at the home, neglect to be specific and positive in their instructions on the question of transmission of tuberculosis so long will the people consider it lightly and sometimes nothing short of several deaths in a family by this malady will be needed to open the eyes of those interested. The laity, however, is, in large communities, considerably alarmed. Philanthropists are interesting themselves financially to aid the fight against tuberculosis in certain quarters. Nevertheless, we still have divided opinions even among men of standing and thought. Only this last week a writer in *The Scientific American* makes the misleading and regretable claim that the germs of consumption are "scavengers" rather than a direct cause of destruction of tissue.

So there is a tremendous task before the general practi-

tioner which, with his opportunities for very early observation and treatment, he should apply himself most persistently to accomplish. From the home to school, the school to marriage and in the various stages of life, his families should look to him to prevent consumption and he should respond. He should act systematically to discharge his trust.

There are many plans which could be suggested for methodical, united efforts by each state medical association, each state governing power and the authorities of individual localities to curb the plague. I will not enter into details here. But I suggest that the North Carolina State Medical Society set the example by appointing a special committee on tuberculosis with instructions to set in motion any plan found by them suitable and practical to the end of carrying on jointly and harmoniously among the profession such researches and sanitary investigations as will tend to make every doctor a practical sanitarian on tuberculosis and to the end of aiding the general warfare being waged in this and other countries against the affliction. Much could be done by concerted efforts to eradicate the cause from the homes, the churches, the theatres, the schools, the post-offices, the stores, the public conveyances, etc. And perhaps, if we are united and work well, we may succeed eventually in getting financial aid from the legislature.

Note.—In conclusion, to the end of starting the movement, I will in the proper time present a motion to this assembly covering the suggestions and field of work indicated in this paper.

A Case of Sub-Normal Temperature Following Malarial Fever.

BY J. D. ROBERTS, M.D., MT. OLIVE, N. C.

This case is reported rather for the rarity of the points observed and with a hope of having some light thrown upon the manifestations shown than for anything new or original; except perhaps the grouping of the symptoms.

Leroy W. is five years old, rather under size and strength, but has always been fairly healthy, except a disposition to take cold easily. Father is healthy and of good physique; mother is of nervous temperament, more intensified in its manifestations since the birth of the patient, the only child brought to them.

I saw him first on the 10th of this month and secured the following history: Parents live in a neighboring town and and three weeks since child had what his attending physician diagnosed as catarrhal fever, lasting twelve days. Came to Mt. Olive on a visit three days after being relieved of fever. Some rise of temperature was noted on the 6th inst., just eight days since last fever, and a physician called on the 7th. I was asked to see him in the absence of the attending physician on the 10th. He had on the 8th and 9th calomel in broken doses and quinine, also a liquid marked fever mixture which reduced the temperature very effectually but left the patient much depressed.

Present condition, 9 a. m. on the 10th inst.: Tongue covered with a very heavy white coating rather flabby, eyes congested, sallow complexion, foul breath, bowels open from calomel of the day before, liver slightly enlarged, temperature 102 deg. F., pulse 110, other examination negative. Had very high fever yesterday, subsiding with prespiration during the night. My diagnosis was malarial fever; treatment was mercury, padophillin, leptandrin, to be followed

by quinia when temperature subsides to 100 degrees or lower; sponging if temperature goes to 103 degrees. Temperature rose to 103 degrees by 4 o'clock p. m., reduced readily with sponging and to normal at by 3 o'clock a. m. of the 11th inst. By an oversight or misunderstanding only 4 grs. of quinia was given and temperature commenced to go up at 8 a. m. and at 10 o'clock was 101 degrees and rose to 103 during the afternoon. Between 3 and 8 o'clock a. m. on the 12th inst, patient had 12 grs. quinine, and at 10 a. m. temperature was 98 1-5. Left mixture of pepsin and hydrochloric acid. At 12 o'clock midnight, I was called and found a temperature of 95 degrees, pulse 140 and very feeble, extremities cold, face drawn, and patient disposed to be drowsy. Active treatment with whiskey, digitalis, nitroglycerine and strychnia brought about reaction in the circulation at once and the pulse was 95 full and regular in an hour. Temperature commenced to go up at 2 a. m. and gradually rose till 8 a. m., when it was normal.

Treatment.—Ol-Terbinth, hydrochloric acid and pepsin, and heart pill of strychnia, nitroglycerine, strophanthis and digitalis, as indicated by pulse.

The first observation after this was at 10 a. m., when the thermometer registered 97 4-5, and at 11 p. m. it showed a temperature of 95 1-5 degrees, commencing to rise between 1 and 2 o'clock the next morning, reaching normal by 8 or 8:30 a. m.

This has been the case from then until my leaving home on the 22nd with only slight variation. Somewhere between 8 and 12 o'clock a. m. the temperature will begin to fall, generally reaching its lowest limit by 11 p. m., remaining stationary for one or three hours, then gong up to normal by 8 a. m. or earlier, once as early as 5 o'clock a. m. It has followed the periodicity of malarial fever and the change in the temperature from normal was similar except the fall was not as rapid as in the rise of temperature in the pyrexia of malaria and the rise to normal is more rapid than is the redu-

tion in typical fever of malaria. The temperature has not gone lower than 95, generally after the first two days 95 3-5 to 96 2-5. It has gone above normal only once, on the 19th inst. at 9 o'clock a. m. it registered 99 1-5 degrees, but commenced to fall immediately afterwards.

Treatment has had no appreciable effect upon the change in the temperature. Strychnia is required to keep the heart's action steady, which it does in small doses, the pulse rarely going over 90 and generally strong and regular. Atropine was given two nights for cold sweats. Bowels for the first six days were slightly loose, two or three billious discharges a day. Purgatives have been given once or twice recently. The tongue has never been entirely clean. The digestion is rather weak and care is required in his diet.

Since the 14th there has been a steady improvement in the boy's strength, flesh and general appearance. During the day he is active, bright and cheerful, while the temperature is down he is very sluggish. His appetite is better than his digestion.

Quinine was given freely for three or four days with no effect. Muriatic and nitro-muriatic acids, calasaya and iron, arsenic, digitalis, strychnia, nux vomica, etc., have been tried alone and in various combinations. So far as I am able to see, none of these are of any utility, except the strychnia keeps the heart's action below 95 regardless of the temperature.

No blood examination has been made to confirm my diagnosis of a malarial origin of this trouble.

Sub-normal temperature of varying degrees and from various causes are not uncommon. A quarter of a century ago it was considered to indicate collapse, and even now we had rather not see it in our patients. Da Costa says it may fall to 89 degrees in cholera. Osler, in case of alcoholic intoxication, reports a fall to 75 in one patient.

It falls in the beginning of peritonitis; it is common during profound shock, and after severe loss of blood; it usually

accompanies alcoholic intoxication and long continued exposure to cold; it is found occasionally after fevers ending by crisis; sometimes seen in cholera infantum and cholera morbus; sunstroke, hysteria, tubercular meningitis and confusional insanity have all presented cases of it; poisons, especially by carbolic acid, gives examples of it, the later recording one case of 83.9 degrees.

Osler says that in the algic or adymanic form of malaria, the temperature may be normal or sub-normal and gives history of one patient treated at Johns Hopkins Hospital with a temperature of 95 to 98 degrees.

Holt in his diseases of children says it is common in wasting diseases to find sub-normal temperature, and premature infants may register 95 or 96 degrees and one recovery is recorded with temperature as low as 93.

So far as I have been able to find references to sub-normal temperature, it has been a sudden decrease and a gradual and usually slow return to normal. I find no references to such a condition as exists in my patient, and while he is apparently doing well, I prefer bringing about a change in this condition. I cannot say I have a theory for the condition presented. We know that the production of heat in the body and the physiology of the heat regulation are subejcts not yet satisfactorily solved. It is probable (Hand Book Med. Sci., article Calorimetry) that the vaso motor regulations in the medulla oblaganta control in some unknown way the relation of heat loss to heat production. A stoppage of heat loss produces a rise in temperature and it should follow that a lessened production of heat in the body without a corresponding decrease in the loss brings about a fall in temperature.

A Protest Against the Indiscriminate Surgical Operations Upon the Female Organs of Generation.

BY ARMISTEAD K. TAYLOE, TARBORO, N. C.

Mr. President and Gentlemen:

When I received a letter from your chairman on the section of Gynecology, requesting me to prepare a paper for this meeting of the North Carolina Society, it was with a mingled feeling of regret and pleasure, that I accepted; for I had made up my mind to come to Raleigh on this occasion, knowing that a pleasant and profitable time awaited me, but I also remembered, that I had promised myself that if ever I contributed another paper to any medical society, the above title should be my text. And, I am free to say that for one whose observations and experience is as yet in its infancy, I fear that I am treading on somewhat dangerous ground. But be that as it may, I only hope, and that is the utmost that I desire, that I may speak no word other than the truth and express no sentiments that will antagonize the two distinct elements of our profession (the conservatives and the radicals). But believing, as I do, that the pendulum has swung too far and feeling that the trammels of custom have long enough prevented the younger members of our craft from expressing their observation and experience frankly, I resolved that complying, I would for the sake of our profession, and for the sake of the weaker and fairer sex, that I would speak a word of protest, and, shall deem it the proudest work of my life, if this hastily written and imperfect paper shall be in the slightest degree instrumental in bringing about a spirit of conservatism, and prove of benefit to womankind.

In the year 1899, a Kentuckian in the person of Ephraim McDowell, performed the first ovariotomy known to the civilized world, which has shed a luster upon his name that noth

ing can ever dim; yet, like everything else that has a power for good, it has a power for evil as well. Robert Beatty, of Georgia, and his disciples in this country, went about the same work; Lawson Tait, of England, and others in the British Isles; many German and French operators, and a host of others, whose names I cannot, and do not care to recall, made their appearance with scalpel in hand, upon the field of battle, in the smoke of which they lost sight of man, and thank God, for this. But poor woman, fell victim to those discoverers and her pelvis was a most fertile field for adventure. Every few months, weeks, if you please, you would hear of some new condition for which ovariotomy was practiced, and some new method of doing it, each said to be better than the other; but, all having for their object the radical removal of everything in sight and many things out of sight, but unfortunately not out of reach. Like a rushing mountain stream, that tears every rock and crag from its path, gathering volume as it goes. It was all done in a struggle for womankind, mingled with a feeling, perhaps, to out do the other in the race for supremacy, and have they not left behind a trail of mistakes, disappointments and misfortunes? It is not necessary to dwell on the dark side of our past affairs, and it is not the meaning or desire to be understood as pointing out their mistakes as faults—for I would not underestimate or undervalue the brilliant achievements of those heroic and faithful workers. I speak of the past that we may take warning for the future, and profit by the experience of those explorers, and that womankind may receive the benefits of their mistakes. There is a restlessness existing among us, and here is where the evils of the hour have arisen. Past experience inspires me with the confidence that the day will come, in fact there is an earnest effort towards conservatism, when we will operate for disease and not for symptoms; and operations upon the pelvic organs, and the floor that supports them will not be done as a panacea for all the aches and pains of women,

as has hitherto been too recklessly done. There was a time when you could not take up a medical journal without seeing a report of a large number of cases of complete oophorectomies and hysterectomies. You rarely attended a society meeting that you did not hear a large report of such cases. How many reported conservative work? You could count them all on the fingers of one hand. I desire to say, just in this connection, that there is a great deal of senseless praise for surgical operations (as though it were a remarkable achievement to do a complete hysterectomy or double ovariotomy). Oh, my fellow practitioners, it is not how much we remove, but how much we save, and how useful it will be. Van Buren struck the key-note when he said: "It is a popular (I may say a vulgar error) which is quite prevalent in regard to the surgeon that his highest function is attained in a brilliant operation, but in truth, a still greater degree of merit, is shown in the avoidance of an operation, when this is possible, by means of fuller pathological knowledge. He further says, that a good surgeon can never cease to be also a fairly good physician. A surgeon not a physician is as a bird with but one wing."

There was a time when we could afford to display only a moderate amount of conservatism on account of the danger of infection, but in this day of enlightenment when the microscope has discovered the "prince of the power of the air" and since the birth of antiseptics the prevention of wound infection and the blessings of anesthetics, rendering the otherwise imperfect technique ideal, it behooves us, gentlemen, to practice the utmost conservatism on the organs of generation. It is a question that no conscientious medical man can, in honor or courage disregard. It is a question that involves the life, health, and happiness of an individual. How many lives have been made miserable, how many homes desolate, by the indiscriminate use of the knife in the hands of some unscien-

tific or perhaps over-zealous aspirant for surgical honors. Never did A. Palmer Dudley utter a better truth than when he said before the American Medical Association, at its last meeting in New Orleans: "How many thousands of suffering, misguided women have offered up their pelvic organs, as a sacrifice, for the simple promise from an ambitious aspirant for professional preference, that such sacrifice would immune them from all future unpleasant conditions peculiar to their sex and how bitterly have those poor misguided women regretted in the years that have followed their misplaced confidence so generously bestowed, when the knowledge was forced upon them by sad experience that they had exchanged one condition of suffering for one equally as disagreeable." But such is life in all things experimental and our profession has never been an exception to the rule.

What are the functions of the ovaries and what the effects of their removal? Besides menstruation and ovulation sufficient evidence has been offered to show that they secrete a substance which plays an important part in the economy, especially upon the nervous system. Just what it is, how elaborated, and its importance is not fully known. It is not within the province of this paper to discuss the great question of the physical, mental and moral effects of removal of the ovaries. And, it is only in a brief and superficial way, that I wish to invite your attention.

The majority take on fat, become more masculine in appearance, as well as in other respects, vaso-motor symptoms are most pronounced, such as hot flashes, pain in the head and pelvis, hot and cold sweats, vertigo, and other distressing symptoms, too numerous to mention. The most persistent and profuse leucorrhœa I have ever encountered, was a result of the removal of both ovaries, vicarious menstruation does occur, but is rare. The nervous symptoms are most pronounced and distressing and the mental condition is often pitiful. The moral effect is largely governed by age, tem-

perament, physical condition and social standing. Any woman who has a great deal of force of character and who is fond of home life, who has not passed the child-bearing period, will grieve over the loss of her organs, it matters not whether she be married or single, she feels that she is branded for life and is ostracised from society by reason of her own feelings. She is humiliated and shy—she thinks that every one with whom she comes in contact knows it—she becomes nervous and emaciated, hysterical, demented and like the evil spirit, of which we read, it overcomes her, breaks down her nervous system, and insanity claims her for its victim. The psychic effect following the removal of the ovaries, is in the inverse ratio to the age of the woman operated upon.

In 1901, I was consulted by an unmarried lady, 26 years of age. Her family physician had advised the removal of her ovaries on account of dysmenorrhea and some nervous symptoms, assuring her that the ovaries were responsible for her entire condition. Upon careful examination, under chloroform anaesthesia, I did not find anything to justify so radical a procedure and so advised her; but, she having every confidence in her family physician and having made up her mind that her ovaries were diseased, my remarks were not consoling and, like Rachael weeping in the wilderness, she refused to be comforted. She was later operated upon by a surgeon in one of our Southern cities, who removed both ovaries. She made an uneventful recovery and returned home in six weeks but, it was only a short while before she became nervous and hysterical, suffered pain and took opiates, gradually became demented, and finally became a raving maniac, and was sent to an institution for treatment, where death soon released her from all suffering and trouble.

There is another type of woman that is of a neurotic temperament, that has a natural inclination for high life, the lady of leisure, so to speak, who's figure is her charm, who drinks Mumms extra dry with the boys, attends all the fashionable

watering places, whose system is greatly impaired by reason of her dissipation. Cut her ovaries out, and I'll promise you that she will go the limit; she is irritable in temper, impulsive, and grows more and more dissatisfied with her surroundings at home. If she be a married woman there is a feeling of *distrust* on the *part of both;* she no longer appeals to his sexual desire and he loses confidence in his spayed wife, and as a natural sequence, domestic unhappiness follows. Such a woman is perfectly sane and responsible in every way, but there becomes a total loss of the moral sense which paves the way for all manner of evil doings and the commission of all kinds of crimes.

Why is this true, and I know it is true. Is it the loss of the moral sense or the knowledge of the ablation? Much is hidden from the eye of every physician, possibly many cases of this kind, due to the secret vice, escape his knowledge. I know of several cases in young women, gifted by nature with high talents, fitted to be a benefit and an ornament to society, sink into such a state of physical and moral degradation, as wrings the heart to witness.

I have given this part of the question a most painstaking observation and study for the past seven years, and I am thoroughly convinced that the unsexing of a certain type of young woman ruins her morally. There is a type of woman that is so bitterly opposed to becoming mothers, that they will intentionally deceive an operator, if possible, in the hope of having those organs destroyed, which God gave them for noble purposes and which have been both her glory and her weakness. They hate children worse than the devil hates "holy water," but think more of a poodle dog than some parents think of their children.

In the time at my disposal it will be impossible to treat this question in a fitting manner, as I have previously said. I shall now in a sweeping way tell you the conditions for

which indiscriminate surgery is practiced and I want to head the list with the so-called cystic ovary, just simply cystic. For every normal ovary you will find twenty cystic. I would like to see a few normal ovaries, perfectly normal, then perhaps I would be able to appreciate the well known cystic ovary. If it were cystic, remove the cyst and leave the ovary; if dermoid, take out both the cyst and the ovary, and be sure to leave nothing behind. The next one on the list is the so-called enlarged or swollen ovary, it is tender on pressure, it is frequently encountered. Did you ever see a man with an enlarged testicle, swollen and tender? Did you ever hear of one being castrated for such a condition? The next condition is abscess of the ovary. Remove diseased tissue and leave as much of the ovary as is consistent with your judgment. Every case is a law unto itself, even in septic cases healthy portions may be spared, particularly in young women. The next condition for which the ovary is held responsible and has to be removed is in so-called reflex condition. You find that condition in nervous, hysterical women, who have marked nervous symptoms, just before or during the menstrual flow. For every woman who is relieved by a radical procedure, ten are made miserable for life. The next condition for which ovariotomy is practiced is in reducing the size of fibroid growth. I would prefer removing uterus and leave ovaries, wherever it is possible, but fibroids of large size gradually encapsulate the ovaries and are so thoroughly blended that isolation and separation are out of the question. No doubt, many myomectomies will take the place of hysterectomy. All inflammatory conditions in the pelvis which are resulted in binding down the ovaries and tubes, should be released and not removed, as has too often been done, in such cases. Lacerations and syphillitic conditions of the cervix should be carefully examined macroscopically and microscopically, before contemplating removal of the uterus. I honestly believe that these conditions have frequently been mistaken

for cancer of the cervix and the organs sacrificed as a result of such a diagnosis.

Dysmenorrhea.—I do not believe that any conscientious surgeon with a sound mind would remove the ovaries in a young woman to relieve this condition, per se. And it is rarely, if ever, justifiable in those more advanced in life.

Dr. S. Weir Mitchell, in the University Medical Magazine, March, 1897, says: "In no case seen by me had ablation of ovaries and termination of menstruation cured epilepsy. I have never sanctioned such operations where appendages were sound; I have agreed thrice to these operations, with such pelvic disease, as of itself, would justify ovariotomy. In all three after some delay, the fits returned, and were in no way permanently aided. I recall as an illustration, a case in which there was epileptic attacks of great severity, only after the menstrual epoch. The ovaries were apparently sound, but as two physicians and a surgeon were against me, my opinion was not regarded and ovariotomy was performed. The attacks which had been daily were stopped for seven weeks after the operation and the case was hastily spoken of as a great triumph. The patient, however, then becomes worse and permanent loss of mind resulted. In all my life, I have never met with but four reflex epileptics, none were from uterine or ovarian or tubual disease."

Dr. Mitchell further said that because an insane woman is usually worse at her periods is no reason why the flow should be stopped by operation; that the climacteric puts an end to those disorders is an old delusion, and in fact the change of life, so-called, is quite as likely to make them worse as to better them. It has been a custom, so it seems, among a number of operators to remove opposite ovary and tube in certain conditions, even though they appear healthy, claiming that it is liable to become diseased also. I desire to ask you, if you remove the right breast, if it is not involved, while operating for cancer of the left? Do you remove the left

eye for cancer of the right? Do you remove the left testicle for malignant growth of the right? I pause for a reply. Why then make an exception in the case of the ovaries? When the opposite organ appears healthy leave it; any other teaching to my mind, is not only an error but a blunder unwarranted, either by analogy or by fact. It is as irrational as it is untrue. There is such a thing as being ultra conservative, as well as too radical but I know, and every man within the sound of my voice knows, that there has been too much cold-blooded surgery practiced upon the female organs of generation. Those who have had ample opportunity and time have been taught by sad experience that they had been too radical and the tide is beginning to turn, for the trend of gynecologic work to-day is by those who know, towards conservatism. But it seems that many of the younger members of our profession are just beginning where the others left off. Symptoms referable to the pelvis do not always mean diseased ovaries or diseased tubes or diseased uterus, but she who so complains is still in danger. Bear in mind that many of the pelvic symptoms are but an expression of constitutional pathological conditions, which calls for general medical treatment. He who expects to find the female organs perfectly normal, both as to condition and position will never find what he seeks. There is nothing without its imperfections and these organs are no exception.

The indiscriminate carving away of the uterus and its appendages is one of the evils of the times. My fellow practitioners, have you ever stopped to think of the unhappiness and suffering that are brought about by indiscriminate work of the various minor causes for which it is done. It takes away from married life the woman's brightest and most natural hope and the husband's highest inspiration, and puts the unmarried woman outside the social world.

"It is the nature of every herb, that it yieldeth seed, and

of the fruit tree yielding fruit, that its seed is in itself."—Gen. i. 12.

"It is the nature of every being creature to be fruitful and multiply."—Gen. i. 12.

Let us, then, fellows, for the love of our profession and of humanity, dedicate and devote our time, our talents, and our labors in the preservation of the reproductive organs, whenever possible, and not everlastingly be scheming to inaugurate some new device to get rid of them. "Fidelity to nature should be our motto."

The Value of Knowing the Composition of the Food Used in Feeding Infants.

BY JOSEPH GRAHAM, M.D., RALEIGH, N. C.

I have nothing new to tell you, nor do I claim anything original, but shall only attempt to urge the necessity for analyzing the food used in infant feeding, and to discuss some of the causes for the general inattention to this work by physicians.

A thorough study of the child's nutrition is the first duty of the physician who practices among children. The problem is not simply to save the child's life while it is in our care, but to use those means which will produce a healthy and normal growth so that the organs of the body may progress to normal development instead of impaired structure and deranged function, the effect of which may last even throughout life. The question whether a child shall be strong and vigorous, or a weakling is often decided by its food in the early months. The largest part of the enormous mortality of the first year of life is traceable directly to disorders of nutrition. The child must be fed so as to avoid not only the dangers of acute indigestion and diarrhea, but the more remote ones of chronic intestinal indigestion, rickets, scurvy and tuberculosis.

Good human milk is the ideal food for infants. A careful knowledge of its composition and variations is indispensable, for upon this knowledge are based all of our rules for preparing a substitute food when woman's milk cannot be obtained.

I shall not try to state all the conditions in which an analysis of the mother's or cow's milk would be advantageous, but only a few of them. Personally, I make it a rule to examine the milk that is fed to every infant intrusted to my care.

There are many conditions which affect the composition of the mother's milk and cause disorders of nutrition. Very young women, and those over thirty-five years of age, usually have a deficiency of fat. The number of pregnancies has no special influence upon lactation, except such as result from general poor health.

In the majority of acute illnesses of a slight character and short duration, there is no perceptible effect upon the milk. In septic conditions bacteria may appear in the milk. In my own experience I have never seen any disturbance of lactation from menstruation. The diet of the mother has a very marked influence upon the composition of the milk. The fat and the proteid are very much influenced by diet, the sugar but little. Nitrogenous diet increases both the fat and the proteid. Vegetable diet decreases both the fat and the proteid. An extremely rich diet increases the fat and usually the proteid. All fluids tend to increase the quantity. Alcohol in the form of malted preparations increases the quantity and usually the fat.

The milk of pregnant women is usually small in quantity and poor in fat. Nervous disturbances have a very decided and immediate effect upon the milk. Fatigue, grief, sudden fright and great excitement are likely to affect the secretion in a most marked manner. I have seen sudden temporary suspension of lactation for a day in a healthy mother worried by the serious illness of her child to such an extent that she was hardly able to furnish me the half ounce requested for examination.

I also remember the case of a healthy mother who was giving an abundant supply of good milk. Misfortune came to her in the sudden loss of her husband and eldest child—the infant immediately showed signs of indigestion—the analysis of the milk showed deficient quantity, low fat and high proteid. Mixed feeding was tried and finally weaning had to be resorted to as the infant was bordering on malnutrition.

It frequently happens that a mother is so anxious to nurse her infant that it is several months before it is discovered that lactation is a failure, the child's nutrition disordered, and that artificial feeding must be resorted to. The lives of children are often sacrificed by the futile efforts of a conscientious mother to do what she is physically unable to do. Every physician should be familiar with the symptoms of inadequate nursing, that valuable time be not lost. If artificial feeding is to be employed the difficulties are much less when it is begun early than after the digestion has been deranged by several weeks of very poor nursing. Repeated examinations of the mother's milk should be made so as to determine whether it is the quantity, or the quality, or both, that is deficient. Also the child should be weighed at least once a week, for no matter what other symptoms are present, the scales are the exact guide by which we must judge our result. An examination of the mothers' milk when the nursing infant is not thriving often reveals the fact that the milk is excessively rich. Excessively rich milk is usually found in a healthy woman with large well developed breasts, who leads a sedentary life and enjoys a rich nitrogenous diet. Very often she is taking alcohol in a malted preparation with the idea that her milk is poor, because the child is not thriving. I have seen many such cases. Such a condition is often found in the milk of a wet nurse who changes from the simple life and frugal diet at home to the more luxurious life and diet of the family into which she goes. Examination of the milk shows high sp. gr. and high percentage of cream. With such knowledge as is ascertained by the examination there usually is no necessity to wean the child, certain exceptions. Regulate the woman's life, decrease the nitrogenous diet, stop the alcohol and insist on exercise, and dilute the milk by giving the infant a few spoonfuls of warm boiled water, or barley water, or equal parts of water and lime water before each nursing. The result is usually obtained quickly,

the indigestion stops and the baby begins to thrive and gain in weight.

Scanty milk of a poor quality is usually seen in a delicate, anaemic care-worn mother. In this class repeated examination is necessary, for it is by this means that we can determine the chances for improvement by treatment, or decide whether it is best to wean at once. Sometimes the quantity is abundant and the quality is poor. This condition is usually seen in women, who, to improve their milk, have been taking much fluid, often alcohol. In such cases the fat and the sp. gr. are both very low, and it is often best to begin artificial feeding at once. Repeated examination will determine, for this is the only intelligent method in our possession for reaching a decision.

In employing a wet nurse I think repeated examination of her milk should always be made. First to ascertain if the quantity or quality are good and later to correct any variations that may occur.

The time for weaning a child can be intelligently determined only by an examination of the mother's milk and frequent weighing of the infant. We should be guided by this, and not by the child's age. If possible we should wean gradually by substituting feeding. This is usually easily accomplished and without any disturbance of digestion. Sometimes it is necessary to wean suddenly in acute serious illness of the mother.

A careful examination of the food substitute is very necessary and we should modify the food and try to make it as near as possible to the ideal food—mother's milk. In using an artificial food we should try to get one which contains the same constituents as woman's milk, namely, fat, proteid, sugar, mineral salts and water, and these constituents should be present in about the same proportion as in woman's milk, should, as nearly as possible, resemble those of woman's milk in their chemical composition, and in their behavior to the

digestive juices. Cow's milk can be made to comply with these fundamental principles if we first learn its composition by examination, and then modify it by diluting the proteid with water and adding cream and milk sugar to build up the fat and sugar to the proper percentages and lime water to overcome the acidity.

In certain diseases of the intestines and certain nutritional diseases, such as malnutrition, morasmus and rickets, an exact knowledge of the composition of the food given is absolutely necessary for intelligent treatment, for these diseases must be treated by diet and not by medicine, and we can accomplish little unless we analyze the food and understand the results obtained.

In treating constipation in infancy I seldom have to use drugs; analysis of the milk shows the fat deficient. By giving a little cream and fruit juices and using massage, and simple suppositories such as soap, molasses or glycerine, and teaching the intestinal habit as soon as possible, cure is usually accomplished.

In dealing with infantile colic I rarely have to use drugs. This condition is usually due to an excess of proteid in the milk. The immediate attack usually yields to enemata. The mother's milk is examined and if sp. gr. and percentage of cream are found to be high, I reduce the meat in her diet, insist upon exercise and dilute the milk by giving plain boiled water or barley water, or equal parts of water and lime water before each feeding. In the majority of cases no other treatment is necessary.

Of course the exact composition of human milk can be ascertained only by a complete chemical analysis, but there are many variations which can be detected by simple methods of examination. The quantity secreted by the breasts can be estimated by measuring the amount drawn by a breast pump, but this is very inaccurate. The most reliable method is to weigh the child on a pair of accurate scales before and after

nursing. Much information as to the quantity of milk can be gained by questioning the mother; if the child constantly nurses a long time, say 20 to 40 minutes, the probability is that the supply is small, and also if at nursing time the breasts are soft and flabby and the milk seems to run in only while the child is at the breast it is certain that the supply is scanty.

In selecting a sample for examination I always have the mother draw all she can with a good breast pump at the regular time for nursing and examine the specimen as soon as possible. The reaction may be taken with ordinary litmus-paper. When fresh, the milk should be either neutral or slightly alkaline, never acid. The sp. gr. may be taken by any ordinary hydrometer—I prefer the Holt lactometer, because it is small and only requires half ounce to float the instrument. In taking the sp. gr. the lactometer should be inserted into the cylinder of milk with a whirl, then it will immediately settle to the proper point, and an obscuring of the scale by the adhesion of the milk is avoided. The sp. gr. is from 1028 to 1032, the average is 1031. Fats decrease the sp. gr., but it is increased by all the other solids.

The simplest method for determining the percentage of fat is by the cream gauge. The graduated glass cylinder holding 10 c. c. is filled to the zero mark with freshly drawn milk, the last few drops being added by a pipette so as to bring the top of the column of milk exactly on a level with the line at the zero mark. The cylinder is then stopped and set aside to stand at the temperature of the room for 24 hours when the percentage of cream is read from the scale. The ratio of the percentage of cream to that of fat is as 5 to 3. When I wish an immediate determination of the percentage of fat I use the Leffman-Beam Method which I will speak of later.

The proportion of sugar is so nearly constant that it may be ignored in chemical examination. There is no direct method for determining clinically the amount of the proteid,

but if the percentage of sugar and mineral salts is considered to be constant or so nearly so as to affect the specific gravity, we can get an approximate estimate of the amount of the proteids from a knowledge of the sp. gr. and the percentage of fat—at any rate we can determine whether the proteids are very abundant or scanty. The specific gravity varies directly with the percentage of proteid and inversely with the percentage of fat, that is: high proteid high sp. gr., high fat low sp. gr. The value of this principle will be seen by a study of the table devised by Dr. Holt:

Specific gravity. Cream 24 hours. Proteids.

Average 1031 7 per cent 1.5 calculated.

Normal.

Variations 1028-1029 8-12 per cent normal rich.

Variations 1032 5.6 per cent normal, fair.

Abnormal below 1028, high above 10 per cent, slightly below normal.

Variation, below 1028 below 5 per cent, very poor milk.

Variation, above 1032, high per cent, above 10, very rich.

Variation, above 1032, below 5 per cent, nearly normal.

Milk having only a moderate variation from the average, such as sp. gr. 1028 and 4 per cent. cream, or sp. gr. 1033 and 10 per cent. of cream, can be modified by treatment, but if the sp. gr. ranges between 1018 and 1024 and the percentage of cream be only 2 or 3 per cent. it is useless to attempt treatment.

A microscopical examination should always be made. Pus, blood, and epithelial cells and colostrum corpuscles may be detected by the microscope. Pus and blood are always abnormal—colostrum corpuscles are abnormal after the 12th day. I have only had one case in which the colostrum corpuscles reappeared in the milk. The child suffered from an attack of acute intestinal indigestion, and on examination of the milk it was found to be excessively rich in both fat and pro-

teids, and also contained colostrum corpuscles. The mother was induced to give up her sedentary life and rich diet, exercise was insisted upon, and the milk was diluted by giving water and lime water to the infant before each nursing. The colostrum corpuscles disappeared gradually and the excessive richness of the milk was decreased, but it was a long time before the infant recovered and could digest the proteid and fat furnished in her mother's milk continued. Finally, as the colostrum corpuscles returned the child had to be weaned and as its digestion had been so much disturbed, feeding was a most difficult matter. In this case it would have been better to have weaned the child, begun good artificial feeding and avoided the poor maternal nursing. Rotch says that the "colostrum corpuscles should disappear from the mother's milk in a week or ten days after birth. If they continue in the milk into the third week, or return at any time during lactation, they almost invariably cause disturbance of the infant's digestion and become an indication for a temporary suspension of nursing. If they persist for any length of time, the mother's milk is manifestly not suitable for the infant, and a substitute should be provided."

In considering the presence of colostrum corpuscles in the milk it is certainly very interesting to note that these corpuscles do not always appear in the so-called colostrum milk. The colostrum should normally disappear in the first week. When it persists, the infant loses more weight than when it speedily disappears. When its presence is prolonged into the third week the infant does not thrive—in other words, the shorter the colostrum period the smaller the so-called physiological loss of weight in the new born.

In making an examination of cow's milk, all we need for clinical purposes is to determine the reaction, sp. gr. and the percentage of fat. If the sp. gr. and percentage of fat are known we can modify the milk by adding water to reduce the percent of proteids, and add cream and milk sugar to in-

crease the fat and sugar, and in this way make a formula of any strength desired.

Cow's milk is neutral or slightly acid. It should never be strongly acid or alkaline. The reaction is taken with litmus paper. The sp. gr. is taken by the usual method with a hydrometer. The sp. gr. should be from 1028 to 1033. Of course if the cream has been removed it is much higher.

The cream gauge cannot be used for estimating the percentage of fat as in human milk, because the milk has usually been handled two or three times before being tested, and consequently the results are not accurate.

I use the Leffman-Beam method. By this method the fat is brought to the surface by centrifugalizing after destroying the nitrogenous matter with sulphuric acid. This test is very accurate, and the apparatus is not expensive, also it has the advantage that the test can be made in a few minutes. This method requires a centrifuge, special centrifuge tube for milk, and volume pipettes. Five c. c. of the milk to be tested is introduced into the milk tube, one c. c. of the hydrochloric acid solution (h. c. l., 50 volumes, wood alcohol 13 volumes and fusel oil 37 volumes) is added and mixed by lively shaking, sulphuric acid of the sp. gr. of 1.83 is then added drop by drop until the tube is filled to the zero mark. During the addition of the sulphuric acid I hold the tube partly immersed in a glass of water and constantly agitate the contents. This precaution is possibly unnecessary but it lessens the excessive production of heat and avoids any danger of explosion, then centrifugalize for three minutes or until the fats have separated, and read off the percentage of fat from the scale. As the milk-tubes for the centrifuge are graduated to read only to five per cent. when the milk contains more than this amount of fat it should be diluted with its own volume of water examined in the usual way, and the result multiplied by two. If cream is to be examined for fat, dilute with four volumes of water and multiply the result

by five. Examination of milk would be of very little value did we not also know the usual symptoms produced by excess or deficiency of each ingredient. If the amount of sugar is very low, the gain in weight is usually slow. If it is excessive the child is apt to have frequent attacks of colic, with thin green and irritating stools. Excess of sugar is sometimes shown by much eructation of gas from the stomach and regurgitation of small quantities of food.

Excess of fat is usually indicated by vomiting one or two hours after eating, and the regurgitated mass is sour, cheesy, and often greasy. Sometimes excess of fat is shown by frequent bowel actions which are nearly normal in appearance but contain small round white lumps, which resemble caseine, but if composed of fat these lumps are soluble in ether. Too little fat is a constant cause of constipation, and the actions are hard and dry. The most reliable symptom that the proteids are in excess is the presence of curds in the stools, and frequent attacks of colic. If the excess is very great, constipation is often marked.

Imperfect digestion of the food may cause identically the same symptoms as when the various ingredients are present in actual excess. Often the difficulty is, not that the different elements of the food are actually in excess, but that too large a quantity is given at each feeding. The most reliable symptom that the quantity of each feeding is too large is frequent regurgitation of a small quantity a few moments after eating.

We cannot modify the food to meet every temporary symptom of indigestion, but we can correct the chief ones. If the child is not gaining in weight and there are no symptoms of indigestion, gradually increase the proportion of all the ingredients of the food. If the child has frequent attacks of colic and curds in the stools, diminish the amount of the proteids. For frequent regurgitation soon after eating, reduce the quantity of each feeding. For frequent vomiting of

sour masses, reduce the fat. For constipation, increase the fat. In a case of indigestion, when an effort is made to ascertain which element of the food is causing the trouble, it is well to remember that the proteids give most trouble to the infant's digestion, the fats next, and the sugar the least.

It is also well to remember that a large quantity of a dilute food is always better digested than a small quantity of a concentrated one. In artificial feeding I believe that the fundamental principle upon which success is founded is to begin with a weak formula, especially weak in proteids. In case indigestion develops, weaken until you get a foothold, hold it until the conditions are settled, and then increase slowly, for we have to crawl before we can walk. We must weaken the food to suit the strength of the child's digestion, and cannot give what the child's age or our own inclination would call for. Neglect of this principle is, I believe, the chief cause of failure in artificial feeding.

Having made an attempt to discuss the advantages of knowing the composition of the food fed to infants, I shall now try to discuss some of the causes for the general inattention to this work by physicians. Coming into general practice after a short service in a hospital for children I was very much surprised to find how little attention most physicians pay to the infant's diet and nutrition. All physicians pay attention to their prescriptions for infants; why not give equal care to the food? I have given this matter considerable thought, and the conclusion that I have reached is, that physicians in general have an idea that to make an analysis of milk requires a certain amount of special training, expensive apparatus and a great consumption of time. A moment's consideration of the methods I have spoken of will convince you that no special training is necessary, and that the time consumed is only a few moments, certainly not more than half hour, even when the microscopical examination is made.

The apparatus is very cheap. The Holt set for the breast milk can be purchased of Eimer & Amend, of New York, for two dollars. The centrifuge, and milk-tubes can be procured for about eight dollars, and are a very good investment. A sufficient amount of chemicals for several months work can be bought of any drugstore for fifty cents.

Another cause for the neglect of this work is, the ease with which temporary success is gained by the use of artificial proprietary foods. The best teaching of to-day is to the effect, that this temporary success is often at the expense of the future. I do not care to go into a discussion of the proprietary food. They are often valuable as temporary agents. For instance, the much condemned condensed milk is often very valuable in cases of malnutrition as a temporary food, for in these cases the infant's digestion has much trouble with the fat and the proteid of milk. Condensed milk contains very little proteid and fat; and, as the sugar it contains is usually easily managed, it becomes a very valuable temporary substitute.

I don't believe the desired results in artificial feeding will ever be obtained until we determine to learn the composition of each food we use; then we will know the ingredients, and can use the food intelligently, modifying it to meet the symptoms of indigestion as they develop. I feel satisfied that this is a better plan than the one we have been following. We have used any number of drugs to meet the various symptoms of indigestion and have gone to the most absurd length in both the quantity and the quality of the drugs that we have administered to babies. We have talked tonics and taught the mother to give medicine to the baby until we ourselves have been responsible for many cases of irritable stomach, weakened digestion and lowered assimilation. Later, as the baby failed to improve we have resorted to over-feeding in place of so much medicine, and here again we have injured

the already abused and over-taxed digestion. Let us realize for all time to come that swallowing food, even if it is retained, does not mean assimilation. It is *what the baby digests and assimilates* that does good, not *what it eats.*

We have learned slowly, and at severe cost to the babies, that the sheet anchor in the treatment of the diseases of nutrition must be assimilation, and to secure this we must use less drugs and more care in feeding, carefully avoiding overworking the digestion by either the quality or the quantity of the food we give.

Medical Dietetics in General Practice.

BY GEO. P. EDWARDS, SYLVA, N. C.

Very often the physician in general practice is confronted with the question: What shall the patient eat? It may be asked by some relative or friend of the patient, by the patient himself or it may arise in the mind of the physician. It should always be thought of by the physician. In the great majority of cases which we are called upon to treat the question is pertinent and should receive attention commensurate with its importance as a therapeutic measure. Far too often the answer is given, "eat anything you like."

By giving this answer the physican virtually ignores important fundamental principles of therapeutics or disregards the best interests of his patient. To rely wholly upon the effect of drugs in the treatment of diseased conditions is, I am convinced, an injustice not only to the patient but to the physician as well. It is utilizing only one of the many efficient measures at our disposal for the scientific and rational treatment of the sick, and to disregard hygienic conditions may result in undoing or preventing any good that might otherwise be expected from medicines given. To allow a patient suffering from incipient tuberculosis to sleep in a room whose air is impregnated with the germs of consumption and with fresh air excluded is almost sure to negative any line of treatment with drugs which may be employed.

Likewise in cases of gastritis, colitis, nephritis, rheumatism, typhoid fever, cholera infantum and a host of other maladies which are influenced by the character of food ingested, we cannot expect good results from medication so long as the matter of diet is neglected.

To be able to utilize to advantage the principles of medical dietetics in the treatment of the sick is of prime importance.

It will greatly increase confidence in the physician and materially improve the chances of recovery in any given case.

It is a well known fact that various foods influence the body differently even in health and it has long been known that the use of various articles of food produce different effects upon the system in disease from their use in health. Many articles which may be taken apparently without detriment in health, become if taken when the system is suffering from disease, cause of serious difficulty. It has also been observed that certain articles of diet exert a favorable influence on the system during the progress of some morbid condition, hastening recovery and even exerting a marked remedial influence. Hence have arisen various "cures" such as the "grape cure," "whey cure," "buttermilk cure," and others in which the diet has consisted wholly or largely of some particular article which seemed to be especially well adapted for the condition under treatment.

In many diseases such as typhoid fever and the summer complaint of children, careful regulation of the diet constitutes by far the most important measure of treatment. Again, articles of food which would be well adapted for use in one malady might be entirely contraindicated or even injurious in another.

A very large proportion of the ills of mankind are caused directly or indirectly by errors of diet—errors in the quantity or quality of food taken or in the manner of preparing the food. Dyspepsia in its numerous forms, gastralgia, gastric ulcer, colitis, gastric dilatation, scurvy, certain forms of anemia, various heptic disorders, intestinal catarrh, dysentery, constipation and the great variety of pathological manifestations which follow in its wake, may all be traced directly to errors in diet. Indirectly, gout, rheumatism, diabetes, appendicitis and chronic nephritis frequently have their origin in errors of diet. In all these cases it is apparent that to correct the dietetic error causing the trouble will be a long

and proper step in the process of effecting a cure. Indeed in order to obtain satisfactory and permanent results in all these cases the regulation of the diet is absolutely essential.

In typhoid fever, pneumonia, measles, scarlet fever, smallpox, influenza, diphtheria and in fact in all acute febrile affections the digestive function is very much disturbed. The active principles of the gastric and intestinal secretions are apparently very much diminished and consequently the power of the digestive organs to handle food is at a very low ebb. For this reason the selection of a suitable form of nourishment is of prime importance. Coarse, solid or improperly prepared food given in such cases is often injurious and may be a cause of serious disaster. Many a case of typhoid fever has had a fatal termination because of insufficient care in the matter of diet. Improper food taken in these acute diseases being undigested often undergoes fermentative or putrefactive changes and thus instead of supplying nourishment, becomes a source of danger to the already imperiled organism. Hence the importance of a practical knowledge of foods and of their relation to the body in a state of disease.

In giving directions for the diet of a patient we must know the pathological condition present. We must bear in mind approximately the nutritive value of the various foods; we should take into consideration the composition of foods especially as regards the proportion of proximate principles—proteids, fats, carbohydrates, water and various salts, which they contain.

In order that the human organism be properly nourished it is essential that all these proximate principles be supplied and they must be supplied in certain proportions. To attempt to nourish the body on either proteids, carbohydrates or fats exclusively for any length of time would be disastrous. If some carbohydrate food alone were used, such as potatoes, it would be necessary to consume the enormous amount of 12

pounds daily to get the required amount of proteid. Of cabbage one would need to eat about 17 pounds daily. No human stomach could long stand such a strain. Or if some food of the proteid class were taken, such as beefsteak alone one would be obliged to eat about 5 pounds daily in order to get sufficient of the non-nitrogenous element. To get rid of the enormous superfluity of proteid element in such a diet would greatly overtax the kidneys and liver and if continued for any length of time would result either in serious kidney lesions or pronounced autointoxication, probably both.

Many and extensive experiments with large bodies of men under varying conditions have shown that the proper proportion of food elements is one of the nitrogenous to about five or six of the non-nitrogenous counting fats and carbohydrates as non-nitrogenous.

Most articles of food are deficient in one or the other of the proximate principles. For this reason a variety of articles must usually be taken in order to obtain the correct proportion of elements. Of the animal foods milk comes nearest having the right proportion of elements and of the vegetable foods wheat is almost perfect containing as it does about 13 per cent of the nitrogenous or proteid element and about 72 per cent of the carbonaceous. This relates to the whole wheat and not to the ordinary white flour which is very deficient in the proteid element. Oatmeal or rolled oats is another food which if properly cooked will provide the system with nutritive elements in the right proportion. Even with these foods however it is advisable as a rule to take some other food containing an abundance of proteid to make sure of maintaining the nitrogenous equilibrium.

To give a complete table of foods and their composition is beyond the scope of this article, but a brief classification of the more common foods may not be out of place.

Table of Nutritive Value of Common Foods.

ACCORDING TO REPORT OF U. S. DEPARTMENT OF AGRICULTURE.

Food Material.	Water.	Proteid.	Fat.	Carbohydrates	Cellulose.
Grains, Flour, etc.					
Oat Breakfast Food	7.7	16.7	7.3	66.2	2.1
Entire Wheat Flour	11.4	13.8	1.9	71.9	5.3
Corn Meal	12.5	9.2	1.9	75.4	2.0
Rice	12.3	8.0	.3	79.0	.4
Tapioca	11.4	.4	1.	88.0	.1
Rye Flour	12.9	6.8	9.	78.7	1.7
Vegetables.					
Beans, dried	12.6	22.5	1.8	59.6	3.5
Lima Beans, dried	9.0	22.0	1.6	60.5	4.0
String Beans	83.0	2.1	.3	6.9	.7
Peas, green shelled	74.6	7.0	.2	16.9	1.0
Corn, green	75.4	3.1	1.1	19.7	.7
Sweet Potatoes	55.2	1.4	.6	21.0	.9
Irish Potatoes	62.6	1.8	.1	14.7	.8
Squash	44.2	.7	.2	4.5	.4
Beets	70.0	1.3	.1	7.7	.9
Cabbage	77.7	1.4	.2	4.8	1.9
Onions	78.9	1.4	.3	8.9	.5
Tomatoes	94.3	.9	.4	3.9	.5
Fruits.					
Apples	63.3	.3	.3	10.8	1.3
Grapes	58.9	1.0	1.2	14.4	3.4
Peaches	81.0	.7	....	4.5	6.1
Oranges	63.4	.6	.1	8.5	5.4
Strawberries	85.9	.0	.6	7.0	2.6
Dates	13.8	1.9	2.5	70.6	1.2
Figs	18.8	4.3	.3	4.2	12.4
Prunes	29.3	2.3	.....	44.4	4.5
Nuts.					
Walnuts, English	1.0	6.9	66.6	6.8	.6
Pecans	1.4	5.2	33.3	6.2	.7
Peanuts	6.9	19.5	29.1	18.5	1.0
Chestnuts	4.5	8.1	5.3	56.4	1.7
Hickory nuts	1.3	5.8	25.5	4.3	.8
Animal Foods.					Ash
Beefsteak, round	90.7	19.0	12.8	.....	7.2
Porterhouse steak	54.4	19.1	17.9	.....	.8
Mutton, average	42.0	13.5	28.3	.....	.7
Salt pork	7.9	1.9	86.2	.....	3.9
Ham	34.8	14.2	33.4	.....	4.2
Bacon	17.4	9.1	62.0	.....	4.1
Fish, average	50.0	12.8	4.2	.....	.9
Eggs	65.5	12.1	9.3	.....	.9
Milk	87.0	3.3	4.0	5.0	.7
Butter	11.0	1.0	88.0	.....	3.0
Cheese	34.2	25.9	33.7	2.4	3.8

It may be seen by the table given that the grains—wheat, oats and corn—supply the various food elements in nearly the right proportion for the best nourishment of the system. It should be observed also that the amount of cellulose in these grains is considerable. This fact may be taken advantage of when prescribing a diet for a patient suffering from chronic constipation, the cellulose material of the grains being a natural stimulus to peristalsis. The various preparations of the entire wheat now obtainable anywhere in the country are excellent additions to the diet of that large class of patients suffering from intestinal inactivity. Entire wheat bread may be used with great advantage by people in health as a measure of prophylaxis against constipation and the numerous train of diseases which follow in its wake. Bread stuffs of various kinds should form a large share of the diet for that numerous class of patients suffering from dyspepsia in its various forms, for in these cases a dry diet is much better than the sloppy foods so commonly used. Breads require thorough mastication and this conduces to improved digestion. Unfortunately the art of mastication has become almost obsolete among American people and in consequence that hydra-headed monster dyspepsia stalks abroad in the land and a new occupation called dentistry has arisen in a desperate effort to preserve portions of the human body which Nature, seeing unused, was gradually removing.

Relative to the great variety of crackers and biscuits on the market it may be said that most of them are objectionable because made of fine white flour and containing as they do considerable soda, and in some cases the flour of which they are made being adulterated with various mineral substances. The graham crackers on the market are usually sweetened and shortened which renders them unsuitable for the sick. The same objection apply to cakes, pies and confectionery in general, and those active individuals, full of mistaken kind-

ness, and given to supplying their sick friends with dainties of all kinds need instruction.

While the grains in general contain the various food elements in about the right proportion there are some exceptions which should be noted. Rice and tapioca are deficient in fat, and the percentage of proteid which of all the food principles is considered most essential, is in these articles comparatively small. The amount of cellulose in rice and fine white flour bread is very small. This accounts for the constipating effect which often results when these foods form a large share of the diet. Rice, however, is easily digested and when supplemented by some food containing a large amount of proteid and fat, such as eggs, it forms an excellent food for a large class of invalids. This combination is well adapted to those cases in which there is a tendency to diarrhœa and in cases of impaired digestion and general feebleness.

Of the many cereal breakfast foods in common use, rolled oats, rice, rolled wheat and corn meal are the best and they are also the cheapest. These cereal foods should be thoroughly cooked. Cooking them a few minutes before breakfast is not sufficient. Raw grains will cause trouble on a sensitive mucous membrane. They should be cooked at least one hour and when done should not be sloppy, but rather quite stiff and dry in order that they may be more thoroughly masticated. The double boiler or steam cooker is the best arrangement for cooking grains. An improvised double boiler may be arranged in the poorest household by simply placing the vessel containing the grain (it may be an ordinary tin can) in a larger vessel having a rounded bottom and containing some water—all to be tightly covered.

Cooked in this way the grains do not require to be stirred and when served with cream or thick fruit juice and eaten with zweibach they constitute an excellent diet for many invalids.

The first water to go on the grains for cooking should be boiling hot in order that the cellulose envelop surrounding the starch granule may be burst open, thus giving the digestive juices easy access to their contents.

Fruits.—In a great many diseases no food is more acceptable to the sick than fresh fruits. Most of them do not contain much nourishment, but when thoroughly ripe are easy of digestion and supply the system with a very refreshing form of light nourishment which, in acute troubles lasting only a few days is amply sufficient for the best interests of the patient. In diseases running a longer course fruits may be used with great advantage as supplementary to the more nourishing foods. The juices of fruits are very efficient intestinal antifermentatives. This is especially true of the grape, lemon, orange, peach and blackberry. The juice of these fruits may be given with great benefit in typhoid fever and in all pathological conditions of the intestinal tract with the exception of acid dyspepsia and gastric ulcer. The juices of the blackberry having a slightly astringent effect on mucous membranes is especially useful in diarrhoeal conditions. A combination of some fruit juice with the white of egg and a little sugar is a valuable form of nourishment in many diseased conditions of the alimentary tract. It is simple, palatable, soothing to an irritable mucous membrane and very nutritious. I always employ this combination in acute enteritis, ileo-colitis and gastritis, using the juice of blackberry in preference.

Fruits in general are somewhat laxative to the bowels. Owing to this property they may be prescribed with advantage in cases of chronic constipation and in other conditions where for any reason the bowels are temporarily inactive, as is often the case during the puerpurum and in other conditions requiring confinement, as after surgical operations. It is far better to correct abnormal conditions of the bowels by regulating the diet than by depressing cathartics. Apples,

prunes, oranges, figs and tamarinds are perhaps the most useful laxative fruits. On account of the large amount of water which they contain fruits are well adapted to cases of nephritis.

Vegetables.—Relative to vegetables, I cannot do better than to quote from Kellogg, who has made extensive research in all matters pertaining to diet. He says: "Coarse vegetables are objectionable articles of diet for the sick; first, on account of the large amount of woody matter which they contain which renders them difficult of digestion and liable to produce irritation. Second, on account of the large proportion of starch of inferior character and difficult of digestion, and hence more liable to undergo fermentation, developing injurious acids and troublesome gases. The diseases in which vegetables should be wholly interdicted, or very much restricted, are as follows: Painful and flatulent dyspepsia, gastric ulcer, cancer of the stomach and atonic dilitation of the stomach. Bright's disease requires that the patient should abstain from the use of asparagus, turnips, cabbage, carrots, beans, peas and all other vegetables which contain a large amount of woody fiber.

"Tomatoes, ordinarily wholesome, are thought to be injurious in diabetis insipidis, and asparagus is by many physicians interdicted in rheumatism. Asparagus and beans should be abstained from whenever they produce pain in the region of the kidney, with deposit in the urine.

"If there be no contraindications, the free use of vegetables is especially indicated in constipation of the bowels, in scurvy, and in many cases in which patients have for a long time been deprived of them."

Meats or Flesh Foods.—Flesh foods, in general, contain a large amount of available nourishment. As may be seen by reference to the above table of food values the percentage of the proteid element in meats range from 13 to 20, but on ac-

count of the considerable amount of excrementitious or waste products contained in flesh foods, they are unsuitable for those patients whose powers of elimination are weakened. This is especially the case in acute and chronic nephritis, in scarlatina, diphtheria, and inflammation of the liver. In all acute infectious diseases the eliminative organs are heavily burdened. This is decidedly true in cases of malarial fever, rheumatism, scarlatina, typhoid fever, pneumonia, measles, variola and diphtheria. To increase this burden by giving foods heavily loaded with excrementitious products would not be in accordance with rational therapeutics. Hence, the use of flesh foods in these diseases should be very limited. In the light of modern physiological chemistry the use of beef tea in typhoid fever and allied conditions is seen to be a mistake.

Bouchard in his work on auto-intoxication says "the animal organism is a veritable laboratory of poisons," and he shows that the urine of animals when fed on meats is far more toxic than when kept on a non-flesh diet.

Alexander Haig gives abundant evidence that the use of flesh foods is an important factor in the etiology of that class of disorders characterized by the so-called uric acid diathesis. In view of this it would be well in these cases to wholly interdict the use of flesh foods for a time, at least, and limit their use after recovery. When we remember that the effect of a meat diet is stimulating and causes a considerable increase of blood pressure, the wisdom of restricting the amount of flesh foods in cases of cerebral congestion, apoplexy, arterio-sclerosis and valvular heart disease is apparent.

Because flesh foods readily undergo decomposition, their use in acute intestinal disorders and in cases of dilated stomach and gastroptosis should be limited.

If there are no contraindications, if the kidneys are sound, arteries in good condition and digestive organs doing fair work, meat may sometimes be used with advantage in diabe-

tes mellitus, general debility, acid dyspepsia, and various convalescent states.

Whenever flesh foods are excluded from the diet it is important that some other article containing an abundance of the proteid element be given in order to maintain the nitrogenous equilibrium and sustain the strength of the patient. Eggs, milk, entire wheat, oatmeal, nuts and gluten will serve the purpose admirably.

In closing this brief and incomplete discussion of the broad subject of medical dietetics, I would mention a few general principles which are of the utmost importance in regulating the diet of the sick.

1. During the onset of all acute infectious diseases, all foods should be withheld for a time. To cope with the disease the organism has enough to do without diverting its energy to the digestion of food. Often at such times, the emunctories are clogged and need time to unload.

2. In beginning the treatment of many chronic diseases such as chronic nasal catarrh, bronchitis, syphilis, neurasthenia, rheumatism, and Bright's disease, it will be of decided advantage to limit the amount of food taken for a time. It gives the eliminative organs opportunity to rest with the result of increased efficiency.

3. The practice of eating fruits, nuts, and other foods between meals should be condemned. Normally the digestive organs are methodical and in the habit of doing their work at certain times. Irregularity of feeding disturbs the rythm and results in fermentation. For persons whose digestion is slow two meals a day are better than more. No food should be taken within three or four hours of the time for retiring. This, of course, does not apply to children or in acute cases requiring nourishment at short intervals.

4. The use of grease in the preparation of foods for the sick should be forbidden. This will rule out such foods as fritters, doughnuts, fried potatoes, fried eggs, griddle cakes,

fricasseed meats, and various other dietetic abominations which should never enter the human stomach. The gastric juice has no more action upon fats than has water. The digestion of the food prevented by its covering of fat, fermentation easily takes place with the formation of irritating acids.

5. The practice of taking various liquids at meal time to soften the food and wash it into the stomach should be condemned. It not only takes the food into the stomach in a coarse lumpy condition unsuitable for solution and permeation by the gastric juice but the large quantity of fluids renders the gastric juice so dilute that its power of peptonization is very much lessened. In consequence, there is slow digestion, fermentation and the formation of various toxic substances injurious, not only to the stomach, but to the general economy. Patients should be taught by the physicians the value and importance of thorough mastication. He should understand that whatever strength he may have will be derived from the food he eats, and he should see the necessity of eating for strength and health, rather than for pleasure alone.

6. To gain the confidence of the patient and his attendants in the matter of diet will insure obedience to directions and give the physician a great advantage in dealing with disease.

Penetrating Gunshot Wounds of the Abdomen with Report of Cases.

BY J. W. LONG, M.D., GREENSBORO, N. C.

My first knowledge of gunshot wounds of the abdomen dates from childhood. A neighbor, a valuable citizen, undertook to remove the breech-pin from an old-fashioned muzzle-loading shotgun, by heating the butt end of the barrel in a forge. The gun was supposed to contain no load, at least no powder; but with the breech heating in the forge and the other end held in the man's hand pointing directly toward his abdomen, the inevitable happened and the buckshot riddled the poor fellow's body.

The shock, the awful agony of pain, the rapid yet slowly developing peritonitis, the devotion yet helplessness of the attending physicians, the autopsy—all made an impression on my youthful mind that serves yet to enshroud every case of penetrating gunshot wound of the abdomen with all the horrors of extremist suffering and speedy dissolution.

Frequency.—The frequency of penetrating gunshot wounds of the abdomen is estimated by Serrier at 6.6 per cent of all wounds, and by Otis at 4.28 per cent in field hospitals, referring, of course, to military practice. Douglas in his recent most excellent work on "Surgical Diseases of the Abdomen," says, "In civil practice it seems safe to make the statement that wounds of the abdomen occur in greater relative frequency" than the percentage just quoted. This is largely accounted for by the pistol-carrying habit, especially in the South and West. Be that as it may, every practitioner is liable to be called to attend a case of gunshot wound of the abdomen. How we should deal with such a case, is the purpose of this paper.

Penetration.—In the case of abdominal wound the first question to be decided is, "Has the missile penetrated the

abdominal cavity?" This is not always easy to determine. Ordinarily the relative positions of the assailant and his victim, the obliquity and powder stain of the wound of entrance and the location of the wound of exit enables one to decide the matter. But these aids are often lacking or deceptive. One of my own cases was shot through the right arm near the shoulder. The bullet left the arm and entered the chest. Three months later it was found in the abdomen, having probably passed through the diaphragm.

Again we often fail to take into account the arch of the diaphragm. In a recent case seen by the writer the bullet had entered the left side of the chest about the ninth rib. No operation was done, but autopsy showed wounds of entrance and exit in pleura, diaphragm and stomach.

It is probably true that a majority of wounds of the abdomen do not penetrate the cavity. Douglas quotes Finkelstein as saying "Of 132 abdominal wounds 70.4 per cent did not penetrate the peritonial cavity." The writer has seen a goodly number of this kind.

A former associate, Dr. W. C. Kluttz, was called to a negro man shot in the abdomen two inches northwest of the umbilicus. The obliquity of the wound of entrance showed the ball to have ranged outward and backward. By means of the X-Rays the ball was located just beneath the liver and near the tip of the eleventh rib. An incision showed it to be just outside the peritoneum.

Another interesting case was seen by the writer some fifteen years ago in which the victim was overpowered by his assailant and shot twice while on the ground struggling. One ball broke the right femur, while the other bullet struck him in the abdomen just to the right of the umbilicus and ranged downward. Two weeks afterward the ball was found in the middle of the corpora cavernosa.

These cases might be multiplied, but it is the 30 per cent

that do not penetrate the abdominal cavity that especially interests us.

A penetrating wound of the abdomen is so serious, its results so almost universally fatal, that we cannot afford to make a mistake touching the question of penetration. Therefore, every abdominal wound should be explored with antiseptic precautions of course by a free incision, either under cocaine or general anæsthesia, following carefully the track of the bullet until its course is determined. When it is found to have entered the abdominal cavity a section should be done immediately. The tract of the bullet is easily followed when it is situated in the anterior or lateral walls of the abdomen. In those cases where the wound of entrance is through the back, pelvis* or chest, and there is any reason to believe the abdomen and cavity has been invaded, an abdominal section should be promptly done. If the bullet has entered through the upper portion of the back, or the chest, do not forget the arch of the diaphragm.

Under no circumstances should the wound be probed with an instrument or finger.

The best rule is to regard every wound that could possibly penetrate the abdomen as having done so, till the contrary appears. This gives the patient the benefit of the doubt.

Penetration Without Perforation.—A good deal has been written about bullets entering the abdominal cavity, or even passing entirely through the body without perforating any of the viscera. This is possible but not believed to be true in more than 3 per cent of cases. Hunter McGuire, Oliver, Stimson, Senn, and many others report instances of this kind. The absence of perforation was proven by operation, or in Senn's cases by the hydrogen test. All recovered. Fen-

* When the writer reached home, after reading this paper, he found waiting for him a patient whose only visible wound was in the scrotum, which looked so innocent that it was pronounced by a physician who saw the patient as "nothing more than a briar scratch." On opening the abdomen there were found two perforations through the bladder, one in the small intestine, and wide spread peritonitis.

ner reports a case not operated on and the bullet found autopsy lying free in the abdominal cavity, but no viscus injured.

The following case was probably primarily an instance of penetration without perforation. A young man becoming involved in a fracas with a traveling showman was knocked down, and while in the act of rising was shot through the right arm near the shoulder. The bullet passed out of the arm and entered the chest. The young man was not greatly inconvenienced by his wounds. In a few days he was out again. Three months later he was brought to me by his physician, Dr. West of Newton. His only complaint at the time was a sense of uneasiness in the right side, located especially about the lower edge of the ribs. The patient was five feet eight inches high, weighed one hundred and eighty pounds and had, barring the distress mentioned, every indication of perfect health. An X-Ray examination easily located the bullet almost exactly beneath McBurney's point.

At the operation the bullet was found lodged between the inner side of the caputcoli and a coil of small intestine, imbedded in adhesions. From the bed of the bullet a small opening entered into the small bowel. This perforation was probably caused principally by pressure necrosis and not by the impact of the bullet, since had it been due to the latter, the patient would unquestionably have had some abdominal symptoms at the time of the injury three months before operation. The bullet was removed, the adhesions separated, the perforation repaired, the abdomen closed without drainage and the patient made an uneventful recovery.

Abdominal Section.—Statistics touching the value of operation for gunshot wounds of the abdomen are rather disappointing, and to the uninitiated confusing.

The confusion arises largely from the fact that many patients shot through the abdomen recover without operation.

The recovery under the old expectant plan, is variously stated as from five to fifty per cent.

The latter percentage while seemingly sustained by the facts, is misleading. It is to be remembered that seventy per cent of abdominal wounds do not even penetrate the abdominal cavity, while at least three per cent of the wounds that do penetrate the cavity, are not accompanied by perforation. It is in military practice especially that statistics seem to favor noninterference. But here it is to be remembered that the soldier on the battle field usually has empty bowels, often has diarrhoea, besides the bullet is steel clad, small, non-explosive and travels with great momentum—all of which favors a small clean-cut hole with chances for the collapsed bowel to escape injury.

The writer believes that five per cent of recoveries in genuine cases of perforation of the bowels is more nearly correct, in cases not operated on. At any rate, it shall be his practice, in every case of gunshot wound of the abdomen, when seen early enough, to explore for penetration and if found, to boldly lay open the abdomen and deal with conditions as he finds them.

Time to Operate.—In dealing with cases of penetrating gunshot wounds of the abdomen the most important item, next to a correct technic, is the time to operate. When called to a case of strangulated hernia the writer makes it a rule to never go home till the strangulation is relieved. The same rule of action should apply here. Bryant says to operate in the first five hours gives by far the best chance of recovery. Douglas quotes Seigel who in 1898 compiled a list of 736 operations with a mortality of 51.6 per cent. Of those operated on after twelve hours 70 per cent died; while of those operated on in the first four hours only 15.3 per cent died. There can be no question of the value of early operation.

Viscera Injured.—The small intestine is by far the most

liable to injury. In one of the writer's cases the small intestine contained nineteen perforations from a single shot. The smallest number of perforations in the small bowel in any case under personal observation was three. The next in order of frequency to sustain injury comes the large bowel, mesentery, stomach, liver, omentum, bladder and smaller structures.

Contraindications to Operation.—Lack of proper facilities such as obtain on the battlefield or in remote country districts, insufficient assistance, or impending dissolution must all be regarded as being unfavorable conditions for an operation. If the patient is first seen after twenty-four hours, and he is doing badly, it is scarcely worth while to operate; and if he is doing well, he stands a better chance to recover if let alone.

The Operation.—The abdomen open, pick up gently the first coil of intestine that shows itself, examine it carefully, push it aside or follow the bowel in the seeming direction of the injury. The two great points to be looked for are bleeding vessels and perforations. It is well to secure them by suitable clamps as they come into view, till all are found. This is all important since the hemorrhage must be stopped, and handling the intestines, more than anything else, causes an extravasation of their contents. The next thing in order is to gently and carefully sponge out the cavity, taking care that no blood or extravasated matter be overlooked. If perchance the whole peritoneum is already soiled, flushing with normal salt solution must be resorted to at this time or later.

The methods of closing the perforations are familiar to all surgeons. It is the writer's custom to employ the Halstead suture and to cover the first row with a continuous suture just sufficient to approximate the serous covering. If there are several perforations close together, or even one has damaged the gut enough to make their repair impracticable, re-section should be done. In this instance, approximation

can be secured by the Murphy button, or preferably end-to-end anostimosis. Either method is quickly applied by one who is thoroughly familiar with the technic and is a deft manipulator.

Case 11 of the appended series illustrates this as well as a number of other points involved in the surgery of penetrating gunshot wounds of the abdomen.

B., age 20 years, while in an altercation with a negro, was shot in the right iliac fossa. Dr. J. Stephen Brown, of Salisbury, was called. Perhaps an hour later the writer saw the patient, and had him conveyed to the hospital. Within three hours from the time of the injury, the operation was begun. The incision was made near the wound. The hemorrhage had been very profuse. Nineteen perforations in the small were found; nine of them were so close together and the bowel so greatly damaged that it was deemed best to resect eighteen inches of the bowel. The ends were approximated by silk sutures. The other ten openings were repaired by suturing after the Halstead method. The bullet, or its course after leaving the intestines, could not be found; although a most diligent search was made. There was considerable extravasation of faecal matter. The cavity was carefully flushed with normal salt solution and superficial gauze drains used. Hypodermoclysis was freely employed. The boy left the table in fair condition. The first urine passed was tinged with blood; afterward, it was free from blood. After twenty-four hours the dressings had a urinous odor. This persisted, and it was feared that a ureter must have been injured. The patient died in four days with evidences of toxaemia.

The autopsy showed the upper and middle portions of the abdomen to be in good condition. The anastimosis and the perforations, with possibly the exception of one, were all holding securely. The pelvis was full of urine and two openings were discovered in the bladder. The bladder wound of en-

trance was in the very bottom of Douglas cul-de-sac, the bullet having passed through the base of the bladder and lodged by the side of the rectum.

Remarks.—The re-sected portion of the bowel clearly shows how impossible it would have been to repair the contained perforations. Had the bladder perforations not been overlooked the probabilities are that this young man would have recovered.

One of the most difficult intestinal perforations to deal with is one situated at the meso-intestinal juncture, with the gut opened on one side and a mesenteric artery severed on the other. Just before the mesentery reaches the bowel its two layers separate leaving a small triangular space bounded on two sides by peritoneum, and on its base by bowel. In this space is contained the intestinal vessels and nerves. Murphy has shown by experiments on dogs that if as much as half an inch of the parallel artery contained in this space and its terminal branches are destroyed that gangrene will result. Therefore the maintenance of the arterial supply is of prime importance.

June 28th, 1903, L. W., a young mulatto man, was shot in the left upper quadrant by the son of his paramour. The weapon used was a 38-calibre pistol at close range. The patient walked two squares after being shot and fell. This occurred about midnight. Dr. W. L. Crump saw the case and asked the writer to join him at 3 a. m. The boy's temperature was 98° and his pulse 80 with plenty of volume. Shock was evident, but was not profound. He was resting quietly under the influence of a hyperdermic of morphia. An operation was advised, but was not agreed to until 10 a. m. The patient was then removed to the operating room of the writer's office and the operation begun as expeditiously as possible twelve hours after the injury. A free incision was made along the outer edge of the left rectus muscle. The abdomen was found full of blood from a severed mesentric artery close to the bowel.

There were found five perforations in the small intestines, one in the colon and two through the mesentery. The perforation severing the artery damaged the bowel wall also, and was dealt with as an intestinal perforation. The bleeding artery was ligated and the edge mesentery snugly approximated against the bowel. The usual suturing of the remaining perforations and toilet of the peritoneum were made and gauze drain placed against the lateral wall. The bullet could not be found.

The subsequent history of this case is interesting. For six days the patient was not given a dose of medicine, because he did so well as to need nothing. During the second week he developed some fever and excessive abdominal griping. These symptoms continued, and on July 18th the patient's abdomen was again opened, this time in the median line, in the hopes of finding the cause of the fever and griping. Nothing abnormal was found except a band of omentum adherent to a coil of small intestine. This was ligated and released. The repair of the perforations was observed to be perfect and especially was it gratifying to see in the newly grown tissue at the site of the meso-intestinal perforation the thumping stump of the recently severed and ligated artery. The recovery from this operation was very prompt, the wound healing by first intention without a drop of pus, despite the nearby presence of the old drainage wound. After this operation there was no more painful peristalsis which was evidently due to the omental adhesion, but the fever continued. It seemed plain that the fever was due to sepsis from the region of the bullet.

Later by means of the X-Rays the bullet was located in the crest of the left ileum, and was removed August 5th. After this there was no more fever, or any other interruption to a perfect convalescence.

Remarks.—The special features of this case are the nearly normal pulse and temperature with eight perforations and

the belly full of blood, the perfect repair of the mesentric artery at the mesointestinal juncture, and the recovery following an operation twelve hours after the injury.

In addition to the lesions found at operation, vexatious problems often confront us. The following case is one in point. H., age about 50, a convict guard, was shot in the abdomen twice by one of his fellow guards. One bullet entered the right upper quadrant while the other penetrated the abdomen two inches to the right of the umbilicus. He was conveyed as quickly as practicable to his home a mile distant and the operation begun four hours after the injury. One bullet had made eight perforations in the small intestine and two in the colon. The upper bullet had torn the gall bladder and lubus quadratus literally into shreds. The mistake was made of trying to repair the gall bladder when it should have been extirpated. The damage to the lobus quadratus was probably not handled in the best way since it is feared that hemorrhage continued from this injury. The intestinal wounds were easily dealt with. This man had bled a great deal, and was profoundly shocked and semi-comatose when the operation was begun. Death occurred about thirteen hours after the injury. This was the first case of the kind the writer had operated on and before his experience in general abdominal work was very large.

One more case, by way of illustrating certain points. This one may be justly considered an ideal case of penetrating gun-shot wound of the abdomen.

February 19th, C. H., a negro employee of the Armour Packing Company, got into an altercation with another negro who shot him in the left upper quadrant of the abdomen, at almost the identical spot that President McKinley was wounded. He walked to the company's office, then to Dr. A. B. Fortune's office, perhaps 500 yards. From there he was sent home in a carriage. The writer saw the case with Dr. Fortune, and they had the patient conveyed to the Greensboro Hospital. Operation was done seven hours after the

receipt of the injury. The ball was found to have ranged backward and slightly outward, instead of upward and inward as in the President's case. Three perforations of the jejunum were found and repaired. The omentum was drawn over the site of the perforations and a small gauze drain placed next to the lateral wall. The operation was done at 10 p. m. The patient slept all night like the typical negro scarcely arousing from the anaesthesia. The next morning he was carried to his own home and left in the care of his negro friends. At the time of the operation his temperature and pulse were each about 100. Afterward he had practically no fever, no pain, no nausea, no anything, to indicate that he was or ever had been in a desperate condition. On the fourth night his bowels wanted to move and, his nurses being asleep, he got up and waited on himself, though he declares he did not go out of the house. To this day he does not realize that he was in a critical condition.

The writer recognizes the fact that six cases are too few to generalize from, but even so small a number show something of what may be done by timely surgery. Three recoveries out of five operations is not a bad showing. And the writer almost entertains the belief that if cases similar to the two reported as having died after operation were to again fall into his hands he might give them a better chance of recovery. The points worthy of consideration are:

(1) Consider all abdominal wounds as penetrating till the contrary is proven by exploration.

(2) Consider all penetrating wounds as having injured the viscera, and operate.

(3) Operate promptly, at the first possible moment.

(4) Inspect carefully every viscus that could possibly be injured.

(5) Make a careful toilet of the peritoneum.

(6) Lastly, but not leastly, use salt solution freely in the abdomen, under the skin and in the bowel.

PENETRATING GUNSHOT WOUNDS OF THE ABDOMEN.—J. W. Long.

No.	Name.	Race.	Age.	Location.	Lesions.	Treatment	Remarks.
1	H.	W.	50	1 Wound right upper quadrant; 1 wound 2 in. west umbilicus.	2 Perforations in gall-bladder; 1 in lobus quadratus; 8 in ileum; 2 colon	Operation 4 hours p. tr. Shock and semi-coma before operation.	Death 13 hrs. p. tr., probably due to hemorrhage from liver.
2	W. B.	W.	20	Right lower quadrant.	19 Perforation in small bowel; 2 in bladder.	Operation 3 hours p. tr Resection of 18 inches of bowel.	Death in 4 days, probably due to overlooked bladder perforations.
3	X.	C.	22	Left ninth rib.	2 Perforations in pleura; 2 in stomach; 2 in diaphragm.	No operation.	Death 12 hrs p. tr. Autopsy—general peritonitis; extravasation of stomach cont.; food in pleura.
4	G.	W.	23	Right arm and chest.	Perforation in ileum.	Operation 3 mos. p. tr.	Recovery very prompt. Bullet lodged between caecum and ileum.
5	L. W.	C.	27	Left upper quadrant	5 Per. in small bowel, 2 in colon, 2 in mesentry, 1 artery severed.	Operation 12 hours p. tr	Recovery.
6	C. H.	C.	28	Left upper quadrant.	3 Perforations in jejunum	Operation 7 hours. p. tr.	Recovery very prompt.

The Papillomata and Their Degenerations.

BY WILLIAM DE BERNIERE MacNIDER, M.D., RALEIGH, N. C.

The papillomata are primarily benign tumors and, as their name indicates, resemble in structure the Papillae of the skin.

The etiology of these growths is in many instances impossible to determine, arising as they do in an apparently spontaneous manner and in some cases tending to disappear almost as rapidly as they occur. In other cases prolonged irritation seems to be a factor concerned in their production. The so-called venereal warts, or condylomata, which are prone to appear upon the genitalia of patients suffering from gonorrhoea and uncleanly subjects very likely originate as a result of irritating discharges.

The Papillomata, for convenience of study, may be divided inot two classes, the hard and the soft. The hard Papillomata are found chiefly upon the skin where they are known as warts; but in some cases this variety is found in the larynx. Their most common site is the skin of the back, neck, face and hands.

The general appearance of these growths with one exception, presents nothing of especial interest. They vary much in size, ranging all the way from that of a pin's head to that of a good-sized marble, and are generally found in clusters, but sometimes singly. The surface has a rough feel, and upon a close examination we can find small point-like projections with intervening fissues. It will be noticed that some of these tumors differ markedly in appearance from others in that they are figmented. The color is only slightly noticeable in some cases, being a light brown, while in others the color is dark brown or even black. The degenerative changes in this variety of papillomata are especially interesting and will be referred to later.

The structure of the hard Papillomata is simple, consisting of projecting tongues of connective tissue containing blood vessels and covering this frame work are several layers of epithelial cells. In the skin the connective tissue and epithelial covering follow the type of normal Papillae, and so we get a growth which consists of an aggregation of these new formed papilliform bodies.

The soft Papillomata have essentially the same structure as the hard growths with the exception that the individual papillae have a marked tendency to give off branch-like processes resulting in the formation of a cauliflower growth which is very vascular. The soft Papillomata are found principally upon the mucous membrane of the bladder, gastro intestinal tract, larynx, nasal chambers and pelvis of the kidneys. In this variety of the tumor the connective tissue is less abundant, they frequently have a distinct villous formation and the epithelium covering the villae follows the type of origin in which the Papillomata is situated. If this be on the intestinal mucous membrane, the epithelium will be of the simple columar variety; if in the bladder transitional epithelium will be found.

The degenerative changes of the Papillomata are of especial interest. The chief ones are Sarcomatous and carcinomatous. A discussion of all the degenerations would consume too much time and therefore the Sarcomatous changes will be considered somewhat in detail with a report of several cases, while the other degenerations will be dismissed with only a passing notice.

A Papillomata or wart beginning to undergo Sarcomatous changes exhibits two symptoms which are noticed by the patient as well as the examiner, *e. g.*, an increase in the size of the tumor and pain. These symptoms are most likely to appear in middle aged or old people and the exciting cause is difficult to determine. A history of some injury or continued

irritation to the growth is sometimes given, while in other cases no such history can be obtained. The tumor tends to increase in size and with this the pain becomes more severe. In both cases to be reported superficial ulceration was noticed. Upon a microscopic examination the following changes are observed: the wart has lost in part or altogether its papillary arrangement; the stroma has decreased in amount while the cellular element has increased. In place of finding a growth formed of numerous papillae we get a mass of cells, most frequently of the small round-cell variety. The stroma is scanty while the blood vessels are numerous. In simple Papillomata the blood vessels are found in the central stem-like mass of connective tissue, but in a papilloma which has undergone sarcomatous changes the blood vessels are found surrounded by the cells which form the tumor. The walls of the vessels are very thin and in some cases the vessel-wall is formed by tumor cells. In such cases it is not difficult to see how easy it is for metastasis to take place by portions of the tumor being carried to distant parts of the body in the blood stream.

Case No. 1.—R. H. D., colored, age 53, laborer, family history good, there being no evidence of malignant disease. Personal history good up to the present time. For ten to fourteen years has had warts on right hand and forearm. One of these growths on posterior surface of first phalanx of middle finger, commenced to increase in size and accompanying this there was considerable pain extending from the finger up into the right exilla. There was no history of any injury. When I first saw the patient the growth was about $1\frac{1}{4}$ inches in diameter, fixed, the surrounding tissues indurated and the surface of the growth beginning to ulcerate. The patient had lost considerable flesh and was unable to sleep on account of the intense pain.

The very probable nature of the trouble was explained to the patient and an amputation of the middle finger advised,

to which he consented. The finger was removed at the metacarpo-phalangeal joint, the wound becoming infected on account of the sloughing condition of the growth. The healing process was slow, and before this was complete a recurrence had formed at the upper angle of wound, and an amputation above the wrist was suggested, but declined. Subsequent to this several of the other warts became sarcomatous and when last heard from the patient was being treated by an old woman who posed as a "cancer doctor."

Case No. 2.—The second case, one of melanotic sarcoma arising from a pigmented wart, is as follows:

The history was kindly given me by Dr. Z. M. Caveness of Wakefield, N. C., who in association with Dr. G. M. Bell, treated this patient.

Mr. S. P. G., age 65, farmer, personal and family history negative. The patient had a congenital pigmented mole, on his back, between the shoulders and near the vertebral column which gave him no trouble until 1902. During this year the growth became inflamed probably from being constantly rubbed by clothing, increased slowly in size and was removed in September, 1902, at which time it was about the size of a small marble. The wound made by the removal of the growth was slow in healing. After this the patient was relieved of all symptoms until the latter part of the spring of 1903, at which time he detected a small freely moving tumor in each axilla. These bodies slowly increased in size until the latter part of the summer when the enlargement in the left axilla began to grow very rapidly, causing much pain. It soon became adherent to and incorporated in its substance the axillary vessels and therefore its removal was not attempted. About this time the enlargement in the right axilla began to increase very rapidly in size and, in order that he might retain the use of his right arm, the mass was removed on November 5th. The wound healed nicely and patient ex-

pressed himself as feeling better. The mass in left axilla continued to enlarge and caused much pain, necessitating the administration of morphine. There were no symptoms of especial interest until November 25th, when the patient had a very profuse intestinal hemorrhage. This was checked by appropriate treatment, but was followed by a severe diarrhoea which continued until the time of the patient's death on November 29th, 1903.

A microscopic examination of the removed lymphatic gland showed it to be a small round-celled melanotic sarcoma.

The following two cases were reported by Dr. R. H. Whitehead in a 'Contribution to the study of Malignant Tumors arising in Congenital Moles," and by his courtesy I include them in this paper.

Case No. 1.—"The subject of this tumor was a white man aged 47 years. He had noticed as long as he could remember a "black mole" on the front of his right forearm a little above the wrist. For the last few weeks this had been enlarging rapidly, so that when I saw him there was in the situation mentioned, a perfectly black tumor, conical in shape, and about 2 C. M. high. The color was due largely to clotted blood, with which the tumor was encrusted, owing to frequent hemorrhages. The growth was removed by incisions carried widely into apparently healthy tissues. Eight months afterwards I learned that he had died with tumors all over him. They were estimated as at least 200 in number, were situated in and beneath the skin and varied in size from that of a pea to that of a hen's egg. Towards the end of his life he suffered much from frequent painful micturition, and on several occasions passed in his urine fleshy masses believed by his medical attendant to be pieces of tumor."

Case No. 2.—"This tumor was obtained through the kindness of Dr. C. S. Mangum, from a white woman 50 years old. She consulted Dr. Mangum concerning a larger mole

situated over the inferior angle of the left scapula. It had been present all her life but only recently had been enlarging. Dr. Mangum thought best to remove the mole, especially as there were evidences of beginning ulceration. The subsequent history unfortunately, could not be obtained. It was learned, however, that the wound made by the operation never healed, and that the lymph nodes in the left axilla soon became enlarged. About eighteen months after the operation she was considered by her family physician to be dying of a malignant tumor of the uterus."

These growths, according to Muna's views, are true carcinomata and not Sarcomata as has been previously stated. He bases this opinion not so much upon the histology of the developed tumor, as upon the embryology.

In considering the other degenerations of the Papillomata only a few words will be necessary.

Carcinomatous changes some time take place in these growths, and this degeneration is most commonly seen in the papillomata of the face and occurs especially in very old people. Here the epithetial covering of the papillae instead of remaining upon the surface of the tumor dips downward in long tongue-like processes, invading the subcutaneous and deeper tissues and we have formed an epithelioma. The villouse tumors of the bladder which are soft papillomata have a tendency, especially when of long duration, to take on carcimomatous changes. In a case of Dr. R. H. Whitehead's which was operated upon by Dr. H. A. Royster for tumor of the bladder, the growth proved to be a papillomata with probable beginning carcinomatous changes.

A Fatal Case of Acute Gonorrhoeal Septicaemia.

BY E. J. WOOD, M.D., WILMINGTON, N. C.

Mrs. H., age 24. Admitted to James Walker Memorial Hospital January, 1904. She was married at 18; first child was born at 19; second child two years later. Family history negative, save a marked rheumatic tendency. The patient however had been free from it. Previous medical history was negative.

History of Present Condition.—Previous to her marriage she had always been perfectly well. She menstruated at 13 and never had any pain or irregularity. Four months after the birth of her first child she began to suffer with painful micturition. This was soon followed by hematuria which had existed for three years when I saw her in January, 1904. Her husband denied all history of any genito-urinary trouble.

The patient was fairly well nourished, had a good color, and was not addicted to any drug habit. Her urine was seldom free from blood if ever. This blood was usually apparent macroscopically. On standing for a short time clots separated.

Miscropic examination revealed blood, pus, and some dark granular casts, at times. After centrifuging I made a smear and stained for gonococci, which were present in large numbers.

She was suffering from violent vesical tenesmus, board-like rigidity of the abdomen and frequent micturition,—so frequent that she was seldom able to go longer than fifteen minutes.

Examination under anaesthesia revealed a "dash-board" perineum, a retrodisplacement of the uterus with flexion, and a stellate laceration of the cervix, also a double pyosalpinx. On endoscopic examination I found a greatly contracted bladder. The mucous membrane was markedly rugous and

there was an intense inflammatory process present. The capillaries were much distended and visible. The ureteral orifices were swollen and everted and seemed to be the seats of even more intense inflammation than the other parts of the bladder.

In view of the conclusions of Dr. John A. Sampson in an article entitled "Ascending Renal Infection," which appeared in the Bulletin of the Johns Hopkins Hospital for December, 1903, I began dilatation and irrigation treatment. The bladder was cocainized, then flushed out with a saturated boracic acid solution and hydraulic dilation begun. At first the capacity was little more than three or four ounces, or rather this was the maximum amount retained. In ten days this amount had been increased to fourteen ounces. In addition to this the bladder was irrigated three times a week with a solution of nitrate of silver. One-half of one per cent and again with a one per cent strength. The hematuria and tenesmus began to subside, and the patient would only have to void her urine once or twice during the night. At the end of the third week I told her she might leave the hospital for a while and return later for operative treatment. The day before the time set for her departure her temperature rose from normal to 102° F. She complained of great pain in her head. No abdominal symptoms were present. On examination I found one lone aestivo-autumnal organism. Giving her the benefit of the doubt she was given quinine abundantly with no results save an annoying urticaria. Her temperature continued to rise. On the second day I made another endoscopic examination and found, in addition to the intense inflammation, white patches resembling a false membrane. During all this febrile movement there was complete absence of bladder symptoms.

She began to complain of violent pain and tenderness over the region of the left kidney. Soon the right kidney became the seat and the left kidney symptoms abated. Joint after

joint became affected. They were swollen and red and exceedingly painful. Finally all the joints of her body were affected. There was no sweating at any time and no chill. Until shortly before her death her pulse rate was markedly disproportionate to the degree of fever. For one while I was inclined to believe that typhoid fever was at the bottom of it but soon changed my mind. We could not at that time secure a Widal test. All the abdominal organs on palpation and percussion were negative, and the same was true of the heart and lungs. Shortly before her death I made a number of blood smears and found a very few diplococci which I presumed to be gonococci. It was a surprise to me that instead of a leucocytosis there was a marked luecopenia, the white count going as low as one thousand.

The patient lost ground rapidly, delirium of a low muttering type set in and she died on the tenth day. It was impossible to secure an autopsy. The bladder irrigation had not been done for four or five days previous to the beginning of the fibrile condition. Could the treatment have forced the infection into the circulation? Or was the kidney the focus? Or the pus tubes? After all it might have been coincidental.

A Report of Fourteen Cases of Pulmonary Tuberculosis Four Years After Treatment by Culture Products.

BY LOUIS F. HIGH, M.D., SOUTHERN PINES, N. C.

The percentage of cures following the use of any remedy or plan of treatment is the exact measure of its worth, provided the number of cases is large enough to eliminate possible errors, such as mistakes in diagnosis and the crediting to treatment favorable terminations that sometimes follow independently.

At the time of discharge the patients considered herein presented evidences of benefit no greater than that which might have been accounted for on grounds other than the use of culture products, save in a few instances and in an uncertain way.

When, after the lapse of more than four years, in four instances more than five years, so large a number of these persons are found to be alive and enjoying as fair degree of health as the rest of mankind, I was led to make the detailed inquiry and comparison embodied in this report.

Each patient received therapeutic doses of tuberculin or watery extract of tubercle bacilli (von Ruck)and in some cases both but not at the same time. On account of the difference in the price, in a few cases, the least expensive was used throughout, while in a very few others the treatment, begun with the one, was completed with the other.

In addition to the foregoing treatment each patient was the subject of individual inquiry and care. Every effort was made to promote the assimilation of a sufficient quantity of proper foods. To this end might be mentioned the routine procedures and many special methods that can be carried out only when the patient is under constant supervision.

At the same time an effort equally persistent was made to lessen disassimilation. Hyperoxidation was controlled by

regulating rest and exercise. The waste products were washed out by large but not excessive quantites of liquids, usually milk. Hydrotherapy in some form was accepted by each. The time was spent almost wholly in the open air.

In a word, each patient was given the same care and treatment that he would have received had not the culture products been used.

TABLE I.—CONDITION AT TIME OF DISCHARGE.

Stage.	No. Cases Treated.	Treated Average Weeks.	Apparently Cured.	Per Cent.	Greatly Improv'd.	Per Cent.	Unimproved.	Per Cent.
1st	7	13	5	71.4	2	28.6	0	0
2nd	4	13	1	25	2	50	1	25
3rd	3	11	0	0	0	0	3	100
Total average	14	12.6	6	54.5	4	28.6	4	28.6

TABLE II.—CONDITION FOUR YEARS AFTER TREATMENT.

Stage.	Number Treated.	Number Still Alive.	No. Free From Evidences of Former Disease.	No. who Still Have Symptoms but able to earn living.	No. Recovered Since Discharge.	No. Unimproved Since Discharge.
1st	7	7	7	0	2	0
2nd	4	3	1	2	0	1
3rd	3	0	0	0	0	3

The chief interest in the foregoing report is found in the fact that none of the patients in the first stage of the disease have not only not relapsed in four years but that all those who were not well when discharged have since recovered, making a final recovery of 100 per cent.

Of those in the second stage 25 per cent appeared cured at the end of their treatment, which cure has so far been enduring. With the exception of the patient who died, which was the one discharged as unimproved, our showing has not changed in these years, giving 75 per cent to whom there is promise of longer days.

One of those discharged as greatly improved of the second stage group suffered a relapse two years later and again came under my care. Upon examination the tubercular process was found to have extended to a formerly healthy part of the same lung. In this case we have an instance where the natural resistance was greatly increased by the care and treatment she received but which lasted for awhile, when without apparent cause, it gave way and another crop of tubercles developed. The idea of immunity to tuberculosis is associated with a longer time than two years,still as the disease remained latent for that period and became active while the patient seemed in her usual health, it is not improbable that the immunity conferred by the use of tuberculin gave out at that time.

In her second treatment the same lines were followed as in the first instance. At the end of fourteen weeks the weight had been regained and all subjective symptoms had disappeared except a slight cough. She appeared to have lost nothing by the relapse except that upon discharge she had inactive tuberculosis where none had existed before. To this time there has been no change. The cough remains about the same and the mucus raised is free from bacilli. She attends her household duties without discomfort.

More extended observation has proven to me that whatever may be their influence in the earlier stages of tuberculosis culture products have no place in the treatment of the latter stage of the disease. Properly given they are without harm, but such persons are suffering the consequences of tubercu-

losis and not from any specific action of the bacilli. These remedies have no tendency to counteract the effect produced by the absorption of necrotic tissue products nor the toxines of saprophytic organisms both of which are present in large quantities.

Again, were it possible to produce immunity in persons in so advanced a stage the area of healthy lung left would hardly be sufficient, in most cases, to comfortably maintain life for any considerable period.

Many observers have reported a larger per cent of apparent recoveries at the time of discharge with and without the use of culture products. What per cent of these have remained cured after any considerable period is quite another matter in the way of the accurate determination of which there are many difficulties. I have not had the privilege of re-examining any of this group since their discharge. My statement is based on their own or that of their physician.

Memoranda.

At the forty-ninth annual session of the Medical Society of the State of North Carolina in Wilmington, N. C., in 1902, the address of the President, Dr. Robert S. Young, contained the following:

"At the St. Paul (1901) meeting of the American Medical Association, a new Constitution and By-Laws were adopted. The American Medical Association earnestly requests the co-operation of our Society in its organization. The officers of that Association asked me to bring the matter before you. I herewith transmit the correspondence, and beg you to authorize a special committee to consider this subject and report during this meeting."

Page 33, Transactions of the same session, contains the following:

"The committee on the President's message reported in favor of the suggestions made; * * * they recommend that a committee be appointed to draft a constitution along the lines laid down by the American Medical Association, and to report to the next meeting of the Society.

"The President appointed the following committee on a new constitution: Drs. J. Howell Way, M. H. Fletcher, H. A. Royster, J. A. Burroughs, Geo. W. Pressly."

In accordance with the instructions therein contained, the committee carefully considered the matter, and after a most critical study of the whole subject, submitted the Constitution and By-Laws as contained in the following pages for the action of the Society.

At the fifty-first annual session in Hot Springs, N. C., beginning June 3, 1903, Dr. A. W. Knox, President, the report of the committee was accepted and made the subject of a full and free discussion extending over a portion of two days, when the Society unanimously adopted the Constitution and By-Laws as reported by the committee, and contained in the following pages:

CONSTITUTION AND BY-LAWS

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

[Adopted at the Fifty-First Annual Session, Hot Springs, N. C., June 3, 1903.]

ARTICLE I.—Title of the Society.

The name and title of this organization shall be "The Medical Society of the State of North Carolina."

ARTICLE II.—Purposes of the Society.

The purpose of this Society shall be to federate and bring into one compact organization the entire medical profession of the State of North Carolina, and to unite with similar organizations in other States to form the American Medical Association; with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—Component Societies.

Component societies shall consist of those districts and county medical societies which shall hold charters from this State Society.

ARTICLE IV.—Composition of the Society.

Section 1. This Society shall consist of Members, Delegates, Guests, Honorary Members, and Honorary Fellows.

Sec. 2. Members.—The Members of this Society shall be the members of the component county medical societies.

Sec. 3. Delegates.—Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component county societies in the House of Delegates of this Society.

Sec. 4. Guests.—Any distinguished physician not a resident of this State may become a guest during any annual session upon invi-

tation of the Society, or its Council, and shall be accorded the privilege of participating in all of the scientific work of that session.

SEC. 5. THE HONORARY MEMBERS shall consist of such regular physicians as have won distinction by their contributions to medical science; those elderly physicians who, prior to their retirement from practice, have displayed a proper interest in the welfare of this Society, or who, by their example, have reflected credit and honor upon the profession. They must be nominated by the Council and receive a two-thirds vote of the members of the House of Delegates present at the meeting at which their names are presented for election. They shall be exempt from all dues and fines, and shall be entitled to all the privileges of the Society, except the right to vote and hold office.

SEC. 6. THE HONORARY FELLOWS shall consist of such physicians as have been members of this Society continuously for thirty years, and whose dues have been paid during that time. They shall receive a two-thirds vote of the members of the House of Delegates present at the meeting at which their names are proposed for promotion. They shall be exempt from all dues and fines, and shall be entitled to all the privileges enjoyed by active members in good standing.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Society, and shall consist of (1) delegates elected by the component county societies, and (2) *ex officio* the officers of the Society as defined in this Constitution.

ARTICLE VI.—SECTION AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such councilor district societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VII.—SESSIONS AND MEETINGS.

SECTION 1. The Society hall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS.

SECTION 1. The officers of this Society shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and ten Councillors.

SEC. 2. The President and Vice-President shall be elected for a term of one year. The Secretary, Treasurer and Councillors shall

be elected for terms of three years each. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of this Society shall be elected by ballot, a majority of the votes cast being necessary to elect, by the House of Delegates on the morning of the second day of the Annual Session, but no Delegates shall be eligible to any office named in the preceding section, except that of Councillor, and no person shall be elected to any such office who is not in attendance upon the Annual Session and who has not been a member of the Society for the past three years. Any nominee for the office of President shall have been an active member of the Society for five years, including the year of his election, shall have attended two of three meetings immediately preceding his nomination, including the meeting at which he is nominated; and shall be a member in good standing at the time of his nomination.

ARTICLE IX.—The Board of Medical Examiners.

Section 1. The seven members of the "Board of Medical Examiners of the State of North Carolina" shall be elected by ballot for a term of six years, a majority of the votes cast being necessary to a choice. The election shall be held on the second day of the annual meeting, and the balloting shall continue until the entire number is elected.

Sec. 2. A vacancy occurring from any cause other than expiration of term of office, shall be filled by the Board or a quorum thereof.

Sec. 3. The elective members of the State Board of Health, and of the State Board of Medical Examiners for Nurses, shall be elected by ballot on the second day of the session.

ARTICLE X.—Funds and Expenses.

Funds for meeting the expenses of the Society shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society, to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publications. Funds may be appropriated by the House of Delegates to defray the expenses of the annual sessions, for publication, and for such other purposes as will promote the welfare of the Society and profession.

ARTICLE XI.—Referendum.

The general meeting of the Society may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the general meeting, submit any such question to the membership of the Society for a final vote; and if the persons voting shall comprise a majority of all

the members of the Society, a majority of such vote shall determine the question, and be binding upon the House of Delegates.

ARTICLE XII.—The Seal.

The Society shall have a common seal, with power to break, change or renew the same at pleasure.

ARTICLE XIII.—Amendments.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that annual session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

By-Laws.

CHAPTER I.—Membership.

Section 1. All members of the component county societies shall be privileged to attend all meetings and take part in all of the proceedings of the annual sessions, and shall be eligible to any office within the gift of the Society.

Sec. 2. The name of a physician upon the properly certified roster of members or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the annual session in the respective bodies of this Society: *Provided*, that licentiates of the State Board of Medical Examiners may, if the House of Delegates so elects, at the meeting of the Society at which they receive license, be entitled to register upon payment of the annual dues for that year, and be accorded all the privileges of other members for that year, the Secretary of the Society entering their names and so certifying to the secretary of the county society where the said licentiates reside, but said licentiates desiring to continue membersip in this Society must affiliate with their local county society.

Sec. 3. No person who is under sentence of suspension or expulsion from any component society of this Society or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Society, nor shall he be permitted to take any part in any of its proceedings until such time as he has been relieved of such disability.

Sec. 4. Each member in attendance at the annual session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge, which shall be evidenc of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

CHAPTER II.—Annual and Special Sessions of the Society.

Section 1. The Society shall hold an annual session at such time and place as has been fixed at the preceding annual session.

Sec. 2. Special sessions of either the Society or House of Delegates shall be called by the President at his discretion, or upon petition of twenty delegates.

CHAPTER III.—General Meetings.

Section 1. The general meetings shall include all registered members, delegates, and guests, who shall have equal rights to partici-

pate in the proceedings and discussions; and, except guests and honorary members, to vote on pending questions. Each general meeting shall be presided over by the President, or in his absence or disability, or by his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations, and the entire time of the session, so far as may be, shall be devoted to papers and discussions relating to scientific medicine.

SEC. 2. The general meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved of by the House of Delegates.

SEC. 3. Except by special vote, the order of exercises, papers and discussions, as set forth in the official program shall be followed from day to day until it has been completed.

SEC. 4. No address or paper before the Society, except those of the President, Orator and Essayist, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

SEC. 5. All papers read before the Society shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done it shall not be published.

CHAPTER IV.—HOUSE OF DELEGATES.

SECTION 1. The House of Delegates shall meet annually at the time and place of the annual session of the Society, and shall so fix hours of meeting as not to conflict with the first general meeting of the Society, or with the meeting held for the address of the President and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But if the business interests of the Society and profession require, it may meet in advance, or remain in session after the final adjournment of the general meeting.

SEC. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

SEC. 3. A majority of the registered delegates shall constitute a quorum, and all of the meetings of the House of Delegates shall be open to members of the Society.

SEC. 4. It shall, through its officers, Council, and otherwise, give

diligent attention to and foster the scientific work and spirit of the Society, and shall constantly study and strive to make each annual session a stepping-stone to future ones of higher interest.

Sec. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate work in medical centers, as well as home study and research, and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. (With these ends in view, five years after the adoption of these By-Laws, except by unanimous consent of the Committee on Scientific Work, no voluntary paper shall be placed upon the annual program, or be heard in the Association, which has not first been read in the county society of which the author is a member.)

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body, in such a manner that not more than one-half of the delegates shall be elected in any one year.

Sec. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

Sec. 10. In sparsly settled sections, it shall have authority to organize the physicians of two or more counties into societies, to be designated by hyphenating the names of two or more counties, so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It may divide the counties of the State into ten councillor districts, and, when the best interest of the society and profession will be promoted thereby, organize in each a district medical society, to meet midway between the annual sessions of this Society, and members of the chartered county societies, and none others,

shall be members in such district societies. (When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Society, and the presidents of the county societies of the district shall be the vice-presidents of such district societies.)

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates, and such committees may report to the House of Delegates in person, and may participate in the debate thereon.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

Sec. 14. It shall present a summary of its proceedings to the last general meeting of each annual session, and shall publish the same in the Transactions.

CHAPTER V.—Election of Officers.

Section 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect: *Provided,* that when only one name is to be balloted for, the House may suspend the rules and declare the same elected by consent.

Sec. 2. The House of Delegates, on the first day of the annual sessions, shall select a Committee on Nominations, consisting of ten delegates, no two of whom shall be from the same councillor district. It shall be the duty of this committee to consult with the members of the Society, and to hold one or more meetings, at which the best interests of the Society and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the names of one member for the office of President, and one member for each of the other offices to be filled at that annual session.

Sec. 3. The report of the Nominating Committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the second day of the general session.

Sec. 4. Nothing in this article shall be construed to prevent additional nominations being made by members of the House of Delegates.

Sec. 5. Any person known to have solicited votes for or sought any office within the gift of this Society, shall be ineligible for any office for two years.

CHAPTER VI.—Duties of Officers.

Section 1. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all commit-

tees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the councillors in building up the county societies, and in making their work more practical and useful.

SEC. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

SEC. 3. The Treasurer shall give bond for the trust reposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Society, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Society, and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Society. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. He shall charge upon his books the assessments againt each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him.

SEC. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the Society, and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the Society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates at the annual sessions. He shall keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society. In so far as it is in his power, he shall use the printed matter, correspondence and influence of his office to aid the councillors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and com-

mittees of their appointment and duties. He shall act as chairman of the Committees on Scientific Work and on Publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—Councillor Districts.

Section 1. To facilitate the more perfect organization of the medical profession, the State of North Carolina is hereby divided by counties into ten councillor districts, as follows:

First District.—Currituck, Camden, Pasquotank, Perquimans, Gates, Chowan, Washington, Tyrrell, Dare and Hyde.

Second District.—Hertford, Martin, Pitt, Bertie, Beaufort, Lenoir, Jones, Craven, Pamlico and Carteret.

Third District.—New Hanover, Pender, Onslow, Duplin, Bladen, Sampson, Columbus and Brunswick.

Fourth District.—Northampton, Halifax, Nash, Edgecombe, Johnston, Wilson, Wayne and Greene.

Fifth District.—Cumberland, Robeson, Scotland, Richmond, Montgomery, Moore, Harnett and Chatham.

Sixth District.—Wake, Franklin, Warren, Vance, Granville, Person, Caswell, Alamance, Orange and Durham.

Seventh District.—Anson, Union, Stanly, Mecklenburg, Cabarrus, Lincoln, Gaston, Cleveland and Rutherford.

Eighth District.—Rockingham, Guilford, Randolph, Forsyth, Stokes, Surry, Yadkin, Alleghany, Wilkes and Ashe.

Ninth District.—Davidson, Davie, Rowan, Iredell, Alexander, Catawba, Caldwell, Watauga, Mitchell and Burke.

Tenth District.—Buncombe, Yancey, McDowell, Madison, Polk, Henderson, Haywood, Transylvania, Jackson, Swain, Macon, Graham, Clay and Cherokee.

CHAPTER VIII.—Council.

Section 1. The Council shall hold daily meetings during the annual session of the Society, and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councillors. It shall meet on the last day of the annual session of the Society for re-organization and for the outlining of work for the ensuing year. At this meeting it shall elect a Chairman and Secretary, and it shall keep a permanent record of its proceedings. It shall, through its Chairman, make an annual report to the House of Delegates at such time as may be provided.

Sec. 2. Each Councillor shall be organizer, peace-maker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing competent societies where none exist, for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each annual session of the House of Delegates. The necessary traveling expenses incurred by such Councillor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the annual session of the Society.

Sec. 3. Collectively the Council shall be the Board of Censors of the Society. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Society. All questions of an ethical nature brought before the House of Delegates or the general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society, upon which an appeal is taken from the decision of an individual councillor. Its decision in all such cases shall be final.

Sec. 4. The Council shall have the right to communicate the views of the profession and of the Society in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the Chairman and Secretary of the Council, as such.

CHAPTER IX.—Committees.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.
A Committee on Public Policy and Legislation.
A Committee on Publication.
A Committee on Nominations.
A Committee on Finance.
A Committee on Obituaries.
A Committee on Arrangement.

And such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be a member and Chairman, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions

of the House of Delegates or of the Society, or to the provisions of the Constitution and By-Laws. Thirty days previous to each anual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the Society as nearly as practicable.

SEC. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Society in securing and enforcing legislation in the interest of the public health and of the scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence of the profession to promote the general influence in local, State and national affairs and elections. Its work shall be done with the dignity becoming a great profession, and with that wisdom which will make effective its power and influence. It shall have authority to be heard before the entire Society upon questions of great concern at such time as may be arranged during the annual session.

SEC. 4. The Committee on Publication shall consist of three members, of which the Secretary shall be one and Chairman, and shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the Society. It shall be empowered to curtail or abstract papers and discussions, and any paper referred to it which may not be suitable for publication in the Transactions may be returned to the author. The Committee shall have authority to arrange for the publication and distribution of the Transactions after receiving competitive bids, and shall use diligence in getting them into the hands of the members. All papers read before the Society shall be the property of the Society.

SEC. 5. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of chapter 5, section 2, of these By-Laws. They shall also nominate an Orator, an Essayist, a Leader of Debate, a Committee on Scientific Work, a Committee on Public Policy and Legislation, a Committee on Publication, a Committee on Obituaries, a Committee on Finance, one member of the Committee of Arrangements, Delegates to the American Medical Association, the Virginia Medical Society, the South Carolina Medical Association, and to such other bodies as the Society may determine. They shall also each third year nominate a Board of ten Councillors.

SEC. 6. The Committee on Finance, to consist of three members, shall examine the accounts of the Treasurer and report to the Society, making suggesions as to the amount of assessments for the

coming year, the remuneration of the Secretary and the Treasurer, and such other suggestions concerning the finances of the Society as they may think proper. The Committee on Obituaries to consist of three members, shall report to the General Meeting of the Society the names of all members dying during the past year, with other data appropriate for memorial publication.

Sec. 7. The Committee of Arrangements shall consist of one member elected by the House of Delegates each year, and two members elected by the County Society in the territory in which the annual session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting places of the Society and of the House of Delegates, the Board of Medical Examiners, and of their respective committees, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER X.—Of the Sections and Voluntary Communications.

Section 1. The newly installed President shall, at the last session of each meeting, appoint a member to serve as Chairman of each of the following sections, to-wit: Anatomy and Surgery, Materia Medica and Therapeutics, Practice of Medicine, Physiology and Chemistry, Obstetrics, Gynæcology, Medical Jurisprudence and State Medicine, Pathology and Microscopy, and Railway Surgery.

Sec. 2. At any time after the meeting the Chairman of each section may appoint three such members as he may select as his assistants to work up such items as he may designate, confining himself to the general advancement in his section.

Sec. 3. The Chairman of sections shall send in to the Secretary, not later than thirty days previous to each meeting of the Society, the titles of papers to be presented by themselves and their assistants, to be ued by the Committee on Scientific Work in making a program for the meeting.

Sec. 4. No paper shall be read before the Society unless the author be present, unless his absence be due to some unavoidable circumstance. A paper presented by proxy may be referred to the Committee on Publication.

Sec. 5. No paper shall be referred to the Committee on Publication until it has been placed in the hands of the Secretary; and the Secretary shall not return any paper accepted by the Society without the consent of the Society, and then he shall take a receipt for the same.

Sec. 6. No paper shall be received by or read before this Society that has been presented to any other Society, excepting only a com-

ponent Society of this Society, or that has been offered for publication in any journal; and in any case of any paper accepted, the author is supposed to have invested with the Society all rights to its ownership.

SEC. 7. No paper shall be published in the Transactions of this Society unless approved by the Committee on Publication; and any paper rejected by said committee shall be returned to the author through the Secretary of the Society.

SEC. 8. It is to be understood that the Society is not to be considered as endorsing all the views and opinions advanced by the authors of papers published in the Transactions of the Society.

CHAPTER XI.—ASSESSMENTS AND EXPENDITURES.

SECTIJN 1. An assessment of two dollars per capita on the membership of the component societies is hereby made the annual dues of this Society which amount shall be collected by the Secretary of each county society from each of its members on or before the first day of March and forwarded to the Treasurer of the State Society before the first day of April in each year. The Secretary of each county society shall forward a statement of its assessment, together with its roster of all officers and members, list of delegates and list of non-affiliated physicians of the county, to the Secretary of this Society before the first day of April in each year.

SEC. 2. Any county society which fails to pay its assessment, or make the reports required, on or before the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the State Society or of the House of Delegates, or receive the volume of Transactions, until such requirements have been met.

SEC. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates on a call of the ayes and noes.

CHAPTER XII.—RULES OF CONDUCT.

The principles set forth in the Declaration of Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XIII.—RULES OF ORDER.

The deliberations of this Society shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XIV.—County Societies.

Section 1. All county societies now in affiliation with the State Society, or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Society.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates, and shall be signed by the President and Secretary of this Society. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the councillor for the district, if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualification of its own members, but, as such societies are the only portals to this Society and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree to practice, non-sectarian medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council and to the House of Delegates.

Sec. 7. In hearing appeals the Council may admit oral or written evidence, as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual councillors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other perferments shall be unstintingly given to such members.

SEC. 12. At some meeting in advance of the annual session of this society prior to the first day of April, each county society shall elect a delegate or delegates with alternates, to represent it in the House of Delegates of this Society in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates with alternates to the Secretary of this Society before the first day of April preceding the annual sessions.

SEC. 13. The secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Society before the first day of April in each year, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster, the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

CHAPTER XV.—ORDER OF BUSINESS.

SECTION 1. General Meetings.

The President, or, in his absence, one of the Vice-Presidents, in the order of their rank, shall call the Society to order, or in the absence of all these officers, a presiding officer shall be chosen by a majority of the members present.

Address of Welcome. Response.

Any business requiring early attention may be introduced by permission and without discussion referred to the Council, the House of Delegates, or the appropriate committee.

The President's Address.

Reports of Committees.

Reports from the House of Delegates.

Reports from the Council.

Written communications upon medical subjects may be read and discussed. This shall include reports from sections as arranged each year by the program.

The Annual Oration.

The Annual Essay.

The Annual Debate.

Oral Communications and Clinical Reports read and discussed.

Final Reports from the Council.

Final Reports from the House of Delegates.

Final Reports from Committees.

Report to the General Meeting from the House of Delegates appointing the time and place of next session.

Report from the House of Delegates of the Election of Officers and Committees.

Appointment of Chairmen of Sections by President.

Adjournment.

SEC. 2. The House of Delegates.

The President, or in his absence, one of the Vice-Presidents in the order of their rank, shall call the Society to order, or in the absence of all these officers a presiding officer shall be chosen by a majority of the members present.

Roll-call.

The President's Message.

Report of Committee on Credentials.

Reports of Committees.

Reports of Officers.

Reports of the Council.

Communications from the General Meeting of the Society.

Reports from the County Societies.

Appointment of Committee on Nominations.

New Business.

General Discussion of Measures for the Advancement of the Profession.

Reports of Committees.

Election of Officers and Committees.

Selection of Place and Time of Next Meeting.

Unfinished Business.

Adjournment.

(While there may at times appropriately be a variation from the details of the above outline of business procedure, it is the intention of these By-Laws to so arrange that the work other than the purely scientific part of the Society's proceedings be done in the Council and House of Delegates, and the general meetings of the Society be devoted exclusively to scientific work.)

CHAPTER XVI.—AMENDMENTS.

These By-Laws may be amended at any annual session by a majority vote of all the delegates present at that session, after the amendment has laid upon the table for one day.

EXPLANATORY:—"The principles set forth in the Declaration of Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public."—*Constitution and By-Laws Medical Society of the State of North Carolina, adopted at Hot Springs, N. C., June 2, 1903; Chapter XII—Rules of Conduct.* Also see report Committee on Ethics, pages 37 and 38, Trans. N. C. Med. Soc., 1903.

Principles of Medical Ethics.

(Extract from the Proceedings of the American Medical Association at the annual session in New Orleans May, 1903.)

Report of the Committee on Medical Ethics.

Dr. E. Eliot Harris, New York, read the following report:

To the President and Members of the House of Delegates of the American Medical Association:

Your enlarged Committee on Medical Ethics, consisting of the Special Committee and one delegate from each State, have unanimously adopted the following report, entitled the "Principles of Medical Ethics of the American Medical Association," which is herewith submitted.

The following report of the Special Committee shall be printed as an explanatory preface to the Principles of Medical Ethics of the American Medical Association:

Gentlemen.—Your committee has given extended and careful thought to the proposed revision of the Code of Medical Ethics referred to it for consideration. As you will not on reference to the caption of the report the word "code" has been eliminated and the expression "Principles of Medical Ethics of the American Medical Association" adopted as adequately descriptive. In reference to this change, it is proper to say that such action on its part is based on the idea that the American Medical Association may be

conceived to occupy some such relation to the constituent State associations as the United States, through its Constitution, holds to the several States. The committee, for this reason, regards it as wiser to formulate the principles of medical ethics without definite reference to "code" or penalties, thus leaving the respective States to form such code, and establish such rules as they may regard to be fitting and proper, for regulating the professional conduct of their members, provided, of course, that in doing so there shall be no infringement on the established ethical principles of this Association. The committee regard as wise and well intended to facilitate the business of the parent organization and promote its harmony this course, which leaves to the State association large discretionary powers concerning membership and other admittedly State affairs. Your committee has retained, to a large extent, the phraseology of the existing code, while aiming at condensation of expression and a better understanding of some of its statements. The report of the committee has been reached unanimously, without dissention or distrust on the part of its members, each aiming to formulate a result based on principle alone, and without regard to any past or present disagreements or misunderstandings whatsoever; such being the case, the committee invites your candid and unprejudiced attention to the results of its labor, feeling that at least some good has been accomplished.

Respectfully submitted,

E. Eliot Harris, *Chairman.*
William H. Welch.
T. J. Happel.
Joseph D. Bryant.

The report of the committee was unanimously adopted.

Principles of Medical Ethics.

(Adopted at the annual session in New Orleans, May, 1903.)

The American Medical Association promulgates as a suggestive and advisory document the following:

CHAPTER I.—The Duties of Physicians to Their Patients.

Section 1. Physicians should not only be ever ready to obey the calls of the sick and the injured, but should be mindful of the high character of their mission and of the responsibilities they must incur in the discharge of momentous duties. In their ministrations they should never forget that the comfort, the health and the lives of those intrusted to their care depend on skill, attention and fidelity. In deportment they should unite tenderness, cheerfulness and

firmness, and thus inspire all sufferers with gratitude, respect and confidence. These observations are the more sacred because, generally, the only tribunal to adjudge penalties for unkindness, carelessness or neglect is their own conscience.

SEC. 2. Every patient committed to the charge of a physician should be treated with attention and humanity, and reasonable indulgence should be granted to the caprices of the sick. Secrecy and delicacy should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted, in their professional visits, should be guarded with the most scrupulous fidelity and honor.

SEC. 3. The obligation of secrecy extends beyond the period of professional services; none of the privacies of individual or domestic life, no infirmity of disposition, or flaw of character observed during medical attendance should ever be divulged by physicians, except when imperatively required by the laws of the State. The force of the obligation of secrecy is so great that physicians have been protected in its observance by courts of justice.

SEC. 4. Frequent visits to the sick are often requisite, since they enable the physician to arrive at a more perfect knowledge of the disease, and to meet promptly every change which may occur. Unnecessary visits are to be avoided, as they give undue anxiety to the patient; but to secure the patient against irritating suspense and disappointment the regular and periodical visits of the physician should be made as nearly as possible at the hour when they may be reasonably expected by the patient.

SEC. 5. Ordinarily, the physician should not be forward to make gloomy prognostications, but should not fail, on proper occasions, to give timely notice of dangerous manifestations to the friends of the patient, and even to the patient, if absolutely necessary. This notice, however, is at times so peculiarly alarming when given by the physician that its deliverance may often be preferably assigned to another person of good judgment.

SEC. 6. The physician should be a minister of hope and comfort to the sick, since life may be lengthened or shortened not only by the acts but by the words or manners of the physician, whose solemn duty is to avoid all utterances and actions having a tendency to discourage and depress the patient.

SEC. 7. The medical attendant ought not to abandon a patient because deemed incurable, for continued attention may be highly useful to the sufferer and comforting to the relatives, even in the last period of the fatal malady by alleviating pain and by soothing mental anguish.

SEC. 8. The opportunity which a physician has of promoting and

strengthening the good resolutions of patients suffering under the consequences of evil conduct ought never to be neglected. Good counsels, or even remonstrances, will give satisfaction, not offense, if they be tactfully proffered and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

CHAPTER II.—The Duties of Physicians to Each Other and to the Profession at Large.

ARTICLE I.—DUTIES OR THE SUPPORT OF PROFESSIONAL CHARACTER.

SECTION 1. Every one, on entering the profession, and thereby becoming entitled to full professional fellowship, incurs an obligation to uphold its dignity and honor, to exalt its standing and to extend the bounds of its usefulness. It is inconsistent with the principles of medical science and it is incompatible with honorable standing in the profession for physicians to designate their practice as based on an exclusive dogma or a sectarian system of medicine.

SEC. 2. The physician should observe strictly such laws as are instituted for the government of the members of the profession; should honor the fraternity as a body; should endeavor to promote the science and art of medicine, and should entertain a due respect for those seniors who, by their labors, have contributed to its advancement.

SEC. 3. Every physician should identify himself with the organized body of his profession as represented in the community in which he resides. The organization of local or county medical societies, where they do not exist, should be effected, so far as practicable. Such county societies, constituting as they do the chief element of strength in the organization of the profession, should have the active support of their members and should be made instruments for the cultivation of fellowship, for the exchange of professional experience, for the advancement of medical knowledge, for the maintenance of ethical standards, and for the promotion in general of the interests of the profession and the welfare of the public.

SEC. 4. All county medical societies thus organized ought to place themselves in affiliation with their respective State associations, and these, in turn, with the Americal Medical Association.

SEC. 5. There is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical; and to attain such eminence is a duty every physician owes alike to the profession and to patients. It is due to the patients, as without it their respect and confidence can not be commanded, and to the profession because no scientific attainments can compensate for the want of correct moral principles.

SEC. 6. It is incumbent on physicians to be temperate in all things, for the practice of medicine requires the unremitting exercise of a clear and vigorous understanding; and in emergencies—for which no physician should be unprepared—a steady hand, an acute eye and an unclouded mind are essential to the welfare and even to the life of a human being.

SEC. 7. It is incompatible with honorable standing in the profession to resort to public advertisements or private cards inviting the attention of the persons affected with particular disease; to promise radical cures; to publish cases or operations in the daily prints, or to suffer such publications to be made; to invite laymen (other than relatives who may desire to be at hand) to be present at operations; to boast of cures and remedies; to adduce certificates of skill and success, or to employ any of the other methods of charlatans.

SEC. 8. It is equally derogatory to professional character for physicians to hold patents for any surgical instruments or medicines; to accept rebates on prescriptions or surgical appliances; to assist unqualified persons to evade the legal restrictions governing the practice of medicine; or to dispense, or promote the use of secret medicines, for if such nostrums are of real efficacy, any concealment regarding them is inconsistent with beneficence and professional liberality, and if mystery alone give them public notoriety, such craft implies either disgraceful ignorance or fraudulent avarice. It is highly reprehensible for physicians to give certificates attesting the efficacy of secret medicines, or other substances used therapeutically.

ARTICLE II.—PROFESSIONAL SERVICES OF PHYSICIANS TO EACH OTHER.

SECTION 1. Physicians should not as a general rule, undertake the treatment of themselves, nor of members of their family. In such circumstances, they are peculiarly dependent on each other; therefore, kind offices and professional aid should always be cheerfully and gratuitously afforded. These visits ought not, however, to be obtrusively made as they may give rise to embarrassment or interfere with that free choice on which such confidence depends.

SEC. 2. All practicing physicians and their immediate family dependents are entitled to the gratuitous services of any one or more of the physicians residing near them.

SEC. 3. When a physician is summoned from a distance to the bedside of a colleague in easy financial circumstances, a compensation, proportionate to traveling expenses and to the pecuniary loss entailed by absence from the accustomed field of professional labor, should be made by the patient or relatives.

SEC. 4. When more than one physician is attending another, one of the number should take charge of the case, otherwise the concert

of thought and action so essential to wise treatment can not be assured.

SEC. 5. The affairs of life, the pursuit of health and the various accidents and contingencies to which a physician is peculiarly exposed sometimes require the temporary withdrawal of this physician from daily professional labor and the appointment of a colleague to act for a specified time. The colleague's compliance is an act of courtesy which should always be performed with the utmost consideration for the interest and character of the family physician.

ARTICLE III.—THE DUTIES OF PHYSICIANS IN REGARD TO CONSULTATIONS.

SECTION 1. The broadest dictates of humanity should be obeyed by physicians whenever and wherever their services are needed to meet the emergencies of disease or accident.

SEC. 2. Consultations should be promoted in difficult cases, as they contribute to confidence and more enlarged views of practice.

SEC. 3. The utmost punctuality should be observed in the visits of physicians when they are to hold consultations, and this is generally practicable, for society has been so considerate as to allow the plea of a professional engagement to take precedence over all others.

SEC. 4. As professional engagements may sometimes cause delay in attendance, the physician who first arrives should wait for a reasonable time, after which the consultation should be considered as postponed to a new appointment.

SEC. 5. In consultations no insincerity, rivalry or envy should be indulged in; candor, probity and all due respect should be observed toward the physician in charge of the case.

SEC. 6. No statement or discussion of the case should take place before the patient or friends, except in the presence of all the physicians attending, or by their common consent; and no opinions or prognostications should be delivered which were not the result of previous deliberation and concurrence.

SEC. 7. No decision should restrain the attending physician from making such consequent variations in the mode of treatment as any unexpected change in the character of the case may demand. But at the next consultation reasons for the variations should be stated. The same privilege, with its obligation, belongs to the consultant when sent for in an emergency during the absence of the family physician.

SEC. 8. The attending physician at any time may prescribe for the patient; not so the consultant, when alone, except in a case of emergency or when called from a considerable distance. In the first instance the consultant should do what is needed, and in the second

should do no more than make an examination of the patient, and leave a written opinion, under seal, to be delivered to the attending physician.

SEC. 9. All decisions in consultation should be held as confidential. Neither by words nor by manner should any of the participants in a consultation assert or intimate that any part of the treatment pursued did not receive his assent.

SEC. 10. It may happen that two physicians can not agree in their views of the nature of a case and of the treatment to be pursued. In the event of such disagreement a third physician should, if practicable, be called in. None but the rarest and most exceptional circumstances would justify the consultant in taking charge of the case. He should not do so merely on the solicitation of the patient or friends.

SEC. 11. A physician who is called in consultation should observe the most honorable and scrupulous regard for the character and standing of the attending physician, whose conduct of the case should be justified, as far as can be, consistently with the conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in the attending physician.

ARTICLE IV.—DUTIES OF PHYSICIANS IN CASES OF INTERFERENCE.

SECTION 1. Medicine being a liberal profession, those admitted to its ranks should found their expectations of practice especially on the character and the extent of their medical education.

SEC. 2. The physician, in his intercourse with a patient under the care of another physician, should observe the strictest caution and reserve; should give no disingenious hints relative to the nature and treatment of the patient's disorder, nor should the course of conduct of the physician, directly or indirectly, tend to diminish the trust resposed in the attending physician.

SEC. 3. The same circumspection should be observed when, from motives of business or friendship, a physician is prompted to visit a person who is under the direction of another physician. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

SEC. 4. A physician ought not to take charge of, or prescribe for, a patient who has recently been under the care of another physician, in the same illness, except in case of a sudden emergency or in consultation with the physician previously in attendance, or when that physician has relinquished the case or has been dismissed in due form.

SEC. 5. The physician acting in conformity with the preceding section should not make damaging insinuations regarding the practice previously adopted, and, indeed, should justify it if consistent with truth and probity; for it often happens that patients become dissatisfied when they are not immediately relieved, and, as many diseases are naturally protracted, the seeming want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

SEC. 6. When a physician is called to an urgent case, because the family attendant is not at hand, unless assistance in consultation is desired, the former should resign the care of the patient immediately on the arrival of the family physician.

SEC. 7. It often happens, in cases of sudden illness, and of accidents and injuries, owing to the alarm and anxiety of friends, that several physicians are simultaneously summoned. Under these circumstances, courtesy should asign the patient to the first who arrives and who, if necessary, may invoke the aid of some of those present, In such a case, however, the acting physician should request that the family physician be called, and should withdraw unless requested to continue in attendance.

SEC. 8. Whenever a physician is called to the patient of another physician during the enforced absence of that physician, the case should be relinquished on the return of the latter.

SEC. 9. A physician, while visiting a sick person in the country, may be asked to see another physician's patient because of a sudden aggravation of the disease. On such an occasion the immediate needs of the patient should be attended to and the case relinquished on the arrival of the attending physician.

SEC. 10. When a physician who has been engaged to attend an obstetric case is absent, and another is sent for, delivery being accomplished during the vicarious attendance, the acting physician is entitled to the professional fee, but must resign the patient on the arrival of the physician first engaged.

ARTICLE V.—DIFFERENCES BETWEEN PHYSICIANS.

SECTION 1. Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such unfortunate cases occur and can not be immediately adjusted, they should be referred to the arbitration of a sufficient number of impartial physicians.

SEC. 2. A peculiar reserve must be maintained by physicians toward the public in regard to some professional questions, and as there exist many points in medical ethics and etiquette through which the feelings of physicians may be painfully assailed in their intercourse, and which can not be understood or appreciated by gen-

eral society, neither the subject-matter of their differences nor the adjudication of the arbitrators should be made public.

ARTICLE VI.—COMPENSATION.

SECTION 1. By the members of no profession are eleemosynary services more liberally dispensed than by the medical, but justice requires that some limits should be placed to their performance. Poverty, mutual professional obligations and certain of the public duties named in Sections 1 and 2 of Chapter III, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by the rich, or by societies for mutual benefit, for life insurance, or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege.

SEC. 2. It can not be justly expected of physicians to furnish certificates of inability to serve on juries, or to perform militia duty; to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without due compensation. But to persons in indigent circumstances such services should always be cheerfully and freely accorded.

SEC. 3. Some general rules should be adopted by the physicians in every town or district relative to the minimum pecuniary acknowledgment from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

SEC. 4. It is derogatory to professional character for physicians to pay or offer to pay commissions to any person whatsoever who may recommend to them patients requiring general or special treatment or surgical operations. It is equally derogatory to professional character or physicians to solicit or to receive such commissions.

CHAPTER III.—THE DUTIES OF THE PROFESSION TO THE PUBLIC.

SECTION 1. As good citizens it is duty of physicians to be very vigilant for the welfare of the community, and to bear their part in sustaining its laws, institutions and burdens; especially should they be read to cooperate with the proper authorities in the administration and the observance of sanitary laws and regulations, and they should also be ever ready to give counsel to the public in relation to subjects especially appertaining to their profession, as on questions of sanitary police, public hygiene and legal medicine.

SEC. 2. It is the province of physicians to enlighten the public in regard to quarantine regulations; to the location, arrangement and dietaries of hospitals, asylums, schools, prisons and similar

institutions; in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering people, even at the risk of their own lives.

SEC. 3. Physicians, when called on by legally constituted authorities, should always be ready to enlighten inquests and courts of justice on subjects strictly medical, such as involve questions relating to sanity, legitimacy, murder by poison or other violent means, and various other subjects embraced in the science of medical jurisprudence. It is but just, however, for them to expect due compensation for their services.

SEC. 4. It is the duty of physicians, who are frequent witnesses of the great wrongs committed by charlatans, and of the injury to health and even destruction of life caused by the use of their treatment, to enlighten the public on these subjects, and to make known the injuries sustained by the unwary from the devices and pretensions of artful impositors.

SEC. 5. It is the duty of physicians to recognize and by legitimate patronage to promote the profession of pharmacy, on the skill and proficiency of which depends the reliability of remedies, but any pharmacist who, although educated in his own profession, is not a qualified physician, and who assumes to prescribe for the sick, ought not to receive such countenance and support. Any drùggist or pharmacist who dispenses deteriorated or sophisticated drugs, or who substitutes one remedy for another designated in a prescription, ought thereby to forfeit the recognition and influence of physicians.

CONSTITUTION AND BY-LAWS

FOR

COUNTY MEDICAL SOCIETIES.

(Approved by the Medical Society of the State of North Carolina at the annual session in Hot Springs, N. C., June 2, 1903.)
See page 35 Transactions, 1903.

Introductory.

The Committee on Organization of the AMERICAN MEDICAL ASSOCIATION, which was continued at the Saratoga meeting herewith submits a tentative Constitution and By-Laws for County Societies, and in doing so desires to say, that while the provisions it contains are deemed essential to good organization, some of the provisions are suggestive and educational in character and may not be applicable to every county or section. In such cases these may be omitted, or others more appropriate substituted for them. In any event, the high ideals for the individual physician, and the spirit of courtesy and kindness which should govern him in his dealings with his professional neighbors, are here set forth thought and consideration.

The Committee is not a unit as to whether there should be charged an admission fee as called for in Section 1, Chapter V, of the By-Laws, but the majority of the Committee believes that this is the correct principle, for the average individual does not appreciate that which he gets for nothing, and furthermore that if an admission fee is charged the individual will not be as likely to drop out of the Society as if he obtained his membership for nothing. The Committee advises, however, that in organizing a County Society, or before adopting the new Constitution, that the charter shall be open for all in the county who are eligible and admit such charter members without the admission fee.

We close this report by making a quotation from our report when we submitted the Constitution and By-Laws for State Societies:

Much in the By-Laws submitted may be regarded as "preaching," but it is inserted advisedly, with the sole object of arousing in the minds of each medical society member a desire for the accomplishment of greater ends than has been permitted by the customs and forms of the past. The Committee earnestly desires that the State

committees will continue the work of perfecting organization, actuated by that love for our profession that its ideals demand. With the medical profession well organized, medical science will more rapidly step to its appointed high place, and the profession which lives in its atmosphere will have that power and respect in the community that is its right.

J. N. McCormack, Bowling Green, Ky.,
P. Maxwell Foshay, Cleveland, Ohio,
George H. Simmons, Chicago, Illinios,
Committee of the American Medical Association.

The Constitution and By-Laws for county societies is merely suggestive and may be amended or altered to meet local conditions, such alterations being, of course, in harmony with the general plan of organization of the State Society.

J. Howell Way,
M. H. Fletcher,
Geo. W. Pressly,
J. A. Burroughs,
H. A. Royster,
Committee of the Medical Society of the State of North Carolina.

Constitution.

ARTICLE I.—NAME AND TITLE OF THE SOCIETY.

The name and title of this organization shall be the ..... County Medical Society.

ARTICLE II.—PURPOSES OF THE SOCIETY.

The purposes of this Society shall be to bring into one organization the physicians of ..... county; so that by frequent meetings and full and frank interchange of views they may secure intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive that respect and support within its own ranks and from the community to which its honorable history and great achievements entitle it; and with other county societies to form the Medical Society of the State of North Carolina, and through it, with other State associations, to form and maintain the American Medical Association.

ARTICLE III.—ELIGIBILITY.

Every legally registered physician residing and practicing in .... county, who is of good moral and professional standing and who does not practice or claim to practice sectarian medicine, shall be eligible for membership.

ARTICLE IV.—MEETINGS.

Regular meetings shall be held at such time and place as may be determined by the Society. Special meetings may be called by the President on a written request of five members. Calls for special meetings shall state the object of such meeting, and no business except that stated in the call shall be transacted at such meeting.

ARTICLE V.

The officers of this Society shall consist of a President, Vice-President, Secretary, Treasurer, Delegates, and Board of (three) Censors. These officers, except the Delegates and Board of Censors, shall be elected annually for a term of one year. Delegates shall be elected for two years, or in accordance with the Constitution and By-Laws of the State Association. One member of the Board of Censors shall be elected each year to serve for three years, provided that at the first election after the adoption of this Constitution one member of the board shall be elected for one, one for two and one for three years.

ARTICLE VI.—Funds and Expenses.

Funds for meeting the expenses of the Society shall be raised by admission fee, annual dues, special assessments and voluntary contribution. Funds may be appropriated by vote of the Society for such purposes as will promote its welfare and that of the profession.

ARTICLE VII.—Charter.

The Society shall apply to the State Society for a charter at the meeting at which this Constitution and By-Laws are adopted, or as soon thereafter as practicable, and the charter shall be kept in the custody of the secretary.

ARTICLE VIII.—Incorporation.

The Society shall have authority to appoint a Board of Trustees and to provide for articles of incorporation whenever it may deem the same necessary.

ARTICLE IX.—Amendments.

The Society may amend any article of this Constitution by a two-thirds vote of its members at any regular meeting, provided that such amendment shall have been read in open session at a previous regular meeting and shall have been sent by mail to each member ten days in advance of the meeting at which final action is to be taken.

By-Laws.

CHAPTER I.—Membership.

Section 1. The Society shall judge of the qualification of its members, but as it is the only door to the State Medical Society and to the American Medical Association or physicians within its jurisdiction, every reputable and legally qualified physician in ..... county, who does not practice or claim to practice sectarian medicine shall be entitled to membership.

Sec. 2. A candidate for membership shall make application in writing, and shall state his age, his college and date of graduation, the place in which he has practiced, and the date of registration in this State. The application must be accompanied by the admission fee, and must be endorsed by two members of this Society. It shall be referred to the Board of Censors, who shall inquire into the standing of the applicant, assure themselves that he or she is duly registered according to the laws of the State, and report at the next regular meeting of this Society. Election shall be by ballot, and

two-thirds of the votes of the members present and voting shall be necesasry to elect. The application shall be returned to the Secretary, who shall file it for future reference. Applications for membership from rejected candidates shall not be received within six months of such rejection.

SEC. 3. A physician accompanying his application with a transfer card from another component county society of this or any State within sixty days of the issuance of said card, may be admitted without fee on a majority vote of the members present, and without the application being referred to the Board of Censors. Such applications may be acted on at the meeting at which they are presented on the vote of three-fourths of the members present, otherwise they shall lie over until the next regular meeting. No annual dues for the current year shall be charged against such members, provided the same have been paid to the Society from which the applicant comes.

SEC. 4. A physician residing in an immediately adjoining county may become a member of this Society in like manner and on the same terms as a physician living in this county, on permission of the county society of the county in which the applicant lives, if there be one, or of the State Councilor for this jurisdiction.

SEC. 5. A member in good standing who is free from all indebtedness to this Society, and against whom no charges are pending, wishing to withdraw, shall be granted a transfer card. This card shall state the date the member associated himself with this Society, the date of issuance of the card, and shall be signed by the President and Secretary. It shall be accompanied with a copy of the application presented at the time the member joined the Society, for information to the society to which the member desires to attach himself.

SEC. 6. All members shall be equally privileged to attend all meetings and take part in all proceedings, and shall be eligible to any office or honor within the gift of the Society, so long as they conform to this constitution and by-laws, including the payment of the dues to this Society and to the State Society: *Provided*, that no member under sentence of expulsion shall take part in any of the proceedings, or be eligible to any office until relieved of such disability. And provided further, that none of the privileges of membership shall be extended to any person not a member of this Society, except on a majority vote of the Society in regular meeting.

SEC. 7. A member who is guilty of a criminal offence or of gross misconduct, either as a physician or as citizen, or who violates any of the provisions of this constitution and by-laws, shall be liable to censure, suspension or expulsion. Charges against a member must be made in writing and be delivered to the Secretary, who

shall immediately furnish a copy to the accused and to the chairman of the Board of Censors. The Board of Censors shall investigate the charges on their merits, but no action shall be taken by the Board before giving the accused and accusers ample opportunity to be heard. Nor shall any action be taken by the Board within ten days of the presentation of the charges to the accused. The Board shall report (1) that the charges are not sustained; or (2) that the charges are sustained, and that the accused be (*a*) censured; (*b*) suspended or a definite time, or (*c*) expelled. Censure or suspension shall require a two-thirds vote of the members present and voting, and a three-fourths vote of those present and voting shall be required to expel a member. No action shall be taken by the Society in such cases until at least six weeks have elapsed since the filing of the charges. A member suspended for a definite time shall be reinstated at the expiration of the time, without action on his part or on the part of the Society.

SEC. 8. Kindly efforts in the interest of peace, conciliation or reformation, so far as possible and expedient, shall precede the filing of formal charges affecting the character or standing of a member, and the accused shall have opportunity to be heard in his own defence in all trials and proceedings of this nature.

SEC. 9. Members expelled from this Society for any cause shall be eligible for membership after one year from date of expulsion, and on the same terms and in like manner as original applicants.

CHARTER II.—POWERS AND DUTIES.

SECTION 1. This Society shall have general direction of the affairs of the medical profession of the county, and its influence shall be constantly exerted to better the scientific, material and social condition of every physician within its jurisdiction. Systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every reputable physician in the county.

SEC. 2. A meeting shall be held at .... p. m. on the ..... in each month (or oftener). .... members shall constitute a quorum. The officers and committee on program shall profit by experience and by the example of other similar societies, and strive to arrange for the most attractive and successful procedings for each meeting. Younger members especially shall be encouraged to do post-graduate and original research work, and to give this Society the first results of such labors. Crisp papers and discussions and reports of cases shall be arranged for and encouraged, and tedious and profitless proceedings and discussions shall be avoided as far as practicable.

SEC. 3. One meeting during each year may be set apart for a dis-

cussion of the business affairs of the profession of the county, with the view of adopting the best methods for the guidance of all. In all proper ways the public shall be taught business methods and prompt collections are essential to the equipment of the modern physician and surgeon, and that it suffers even more than the profession when this is not recognized.

SEC. 5. The Society shall endeavor to educate its members to the belief that the physician should be a leader in his community, in character, in learning, in dignified and manly bearing, and in courteous and open treatment of his brother physicians, to the end that the profession may occupy that place in its own and the public estimation to which it is entitled.

CHAPTER III.—OFFICERS.

SECTION 1. The officers of the Society shall be elected at the (December) meeting in each year, which shall be known as the annual meeting. Nominations shall be made by informal ballot, and all elections shall be by ballot. The vote of a majority of all the members present shall be necessary to an election.

SEC. 2. The President shall preside at all meetings of the Society, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession in the county during the year, and it shall be his pride and ambition to leave it in better condition as regards both scientific attainments and harmony than at the beginning of his term of office.

SEC. 3. The Vice-President shall assist the President in the performance of his duties, shall preside in his absence, and, on his death, resignation or removal from the county, shall succeed to the presidency.

SEC. 4. The Secretary shall record the minutes of the meetings and receive and care for all records and papers belonging to the Society, including its charter. He shall keep account of and promptly turn over to the Treasurer all funds of the Society which may come into his hands. He shall make and keep a correct list of the members of this Society in good standing, noting of each his correct name, address, place and date of graduation, and the date of the certificate entitling him to practice medicine; and in a separate list he shall not the same facts in regard to each legally qualified physician in this county not a member of this Society. It shall be his duty to send a copy of such lists, on blank forms furnished him for that purpose, to the Secretary of the State Society, at such time as may be designated by the State Society. In making such lists, he shall endeavor to account for each physician who has moved into or out of the county during the year, stating, when possible, both his present and past address. At the same time, and with his report of

such lists of members and physicians, he shall transmit to the State Society his order on the Treasurer for the annual dues of the Society.

SEC. 5. The Treasurer shall receive all dues and money belonging to the Society from the hands of the Secretary or members, and shall pay out the same only on the written order of the Secretary.

SEC. 6. The delegates shall attend and faithfully represent the members of this Society and the profession of this county in the House of Delegates of the State Society, and shall make a report of the proceedings of that body to this Society at the earliest opportunity.

CHAPTER IV.—COMMITTEES.

SECTION 1. There shall be a Board of Censors as provided in the constitution, a standing committee on programs and scientific work, a committee on public health and legislation, and such special committees as may from time to time be deemed necessary.

SEC. 2. *Board of Censors.*—This Board, consisting of three members, one elected annually, shall examine and report on the qualification of applicants for membership, subjecting each applicant to such examination as it may deem necessary. It shall investigate charges preferred against a member, and report its conclusions and recommendations to the Society. In case of the absence of a member of the Board, the President may appoint some member to fill the vacancy. The senior member of the Board in point of service shall be chairman of the Board.

SEC. 3. *Committee on Program and Scientific Work.*—This committee shall consist of the President, Vice-President and Secretary. It shall be its duty to promote the scientific and social functions of the Society by arranging attractive programs for each meeting, and by urging each member to take part in the scientific work. It shall stimulate fraternalism and good feeling among the members in every way possible.

SEC. 4. *Committee on Public Health and Legislation.*—This committee shall consist of three members, who shall be appointed annually by the President. It shall be its duty to enforce and support the sanitary and medical laws of the State in this county, to cooperate with the legislative committee of the State Society in all matters pertaining to legislation, and to prosecute quacks and medical pretenders in this county.

CHAPTER V.—FUNDS AND EXPENSES.

SECTION 1. The admission fee, which must accompany the application, shall be $5.00, and shall include the annual dues for the fiscal year, provided that when more than one-half of the fiscal year has

elapsed at the time of election of a member, one-half of the annual dues shall be remitted, making the admission fee in such cases $4.00. The admission fee shall be returned if the applicant is not accepted.

SEC. 2. The annual dues shall be $2.00, and shall be payable on January 1st of each year. Any member who shall fail to pay his annual dues by April 1st shall be held as suspended without action on the part of the Society. A member suspended for non-payment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members.

SEC. 3. The fiscal year of this Society shall be from January to December, inclusive.

CHAPTER VI.—ORDER OF BUSINESS.

The order of business shall be as follows—

1. Call to order by the President.
2. Reading of minutes of last meeting.
3. Clinical cases.
4. Papers and discussions.
5. Unfinished business.
6. Miscellaneous business.
7. Announcements.
8. Adjournment.

CHAPTER VII.—RULES OF ORDER.

The deliberations of this Society shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by vote.

CHAPTER VIII.—PRINCIPLES OF ETHICS.

The Principles of Ethics of the American Medical Association and of the Medical Society of the State of North Carolina shall be the Code of this Society.

CHAPTER IX.—AMENDMENTS.

These by-laws may be amended at any regular meeting by a two-thirds vote thereof, provided that such amendment has been read in open session at the preceding regular meeting, and a copy of the same has been sent to each member by the Secretary ten days in advance of the meeting at which final action is to be taken.

Members of the Component County Medical Societies of the Medical Society of the State of North Carolina, December 1, 1904.

(Gentlemen will confer a favor upon the Secretary by promptly advising of any errors, deaths, removals or other changes noted. It is desired to preserve the record as accurate as possible, and it is to be remembered that it will be just so accurate as reported by the county society officers and members.)

ALAMANCE COUNTY SOCIETY.

*President, George W. Long .....Graham.
*Secretary, J. W. McPherson.....Haw River.

Members and Address.	*Licensed.*	*Joined State Society.*
*Anderson, C. A., Burlington..... Col. P. & S., Balto., 1900.	1893	1899
*Faucett, T. S., Burlington..... Balto. Med. Coll., 1893.	1893	1896
Freeman, R. A., Burlington..... 1½ course Wash. Univ., Balto.	1879	1904
*Goley, W. R., Graham..... Coll. P. & S., Balto., 1885.	1885	1893
*Long, Geo. W., Graham ..... Univ. Pa., 1877.	1877	1877
*McPherson, J. W., Haw River..... Balto. Med. Coll., 1898.	1898	1898
McPherson, L. D., Haw River..... Univ. Md., 1903.	1903	1903
Moore, H. R., Burlington..... Coll. P. & S., Atlanta, 1899.	1899	1904
Page, Jno. W., Burlington..... Coll. P. & S., Balto.	....	1904
Patterson, T. W., Burlington..... Coll. P. & S., Balto.	....	1904
*Parris, O. J., Swepsonville..... Balto. Med. Coll., 1897.	1897	1904
*Pickett, J. A., Osceola ..... Univ. Nashville, 1894.	1894	1904
*Stafford, W. G., Burlington..... Bellevue, N. Y., 1891.	1879	1890
*Tyson, T. D., Mebane..... Univ. Col. Med., Va., 1899.	1899	1904
Watson, Geo. S., Union Ridge..... Coll. P. & S., Balto., 1874.	....	1904

* Registered present at Raleigh, session 1904.

ANSON COUNTY SOCIETY.

President, J. M. Dunlap.....Ansonville.
*Secretary, J. M. Covington, Jr. .....Wadesboro.

Members and Address.	*Licensed.*	*Joined State Society.*
Ashe, E. S., Wadesboro..... Coll. P. & S., Balto., 1885.	1885	1904
Barrett, W. W., Peachland..... Ky. Sch. Med., 1892.	1897	1904
Beckwith, R. B., Morven ..... Vanderbilt Univ., 1883.	....	1904
Bennett, J. H., Wadesboro..... Univ. Md., 1894.	1894	1904
Carpenter, S. B., Cedar Hill..... Univ. N. Y., 1876.	....	1904
*Covington, J. M., Wadesboro..... Med. Coll. S. C., 1874.	1879	1879
*Covington, J. M., Jr., Wadesboro..... Med.-Chi., Philadel., 1899.	1899	1904
Dunlap, J. M., Ansonville..... Univ. N. Y., 1876.	....	1904
Hart, J. E., Deep Creek..... Univ. Md., 1897.	1897	1904
*Kerr, J. Edwin, Lilesville..... Univ. Md., 1898.	1898	1898
Meisenheimer, T. F., Morven..... Univ. N. Y., 1880.	1881	1881
Smith, L. C., Polkton..... Balto. Med. Coll., 1892.	....	1904
Thompson, C. D., Morven..... Univ. Tenn., 1901.	1901	1904

ASHE COUNTY SOCIETY.

President, J. W. Colvard.....Jefferson.
*Secretary, J. L. Ballou .....Crumpler.

Ballou, J. L., Crumpler..... Univ. Nashville, 1901.	1902	1902
Barton, J. H., Weaver's Ford..... Registered on oath practice prior to 1885.	....	1904
Blevins, Manly, Beaver Creek..... Registered on oath practice prior to 1885.	....	1904
Call, T. J., Gap Creekmore..... Grad. P. & S., Balto. Registered on permit B'd Exs. practice prior to 1885.	....	1904
Colvard, J. W., Jefferson..... Attended P. & S., Balto., 1 year, 1883.	....	1904
Jones, A. L., Brandon ..... Univ. Coll. Med., Va., 1901.	1901	1904
Jones, T. J., Lansing..... Tenn. Med. Coll., 1895.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Jones, R. W., Clifton	....	1904
Lemly, S. T., Todd	....	1904
Pennington, S. E., Sturgills P. & S., Balto., 1891.	1892	1904
*Roberts, J. D., Mount Olive Bellevue Med. Coll., 1875.	1877	1904
Testerman, J. C., Jefferson	....	1904

BEAUFORT COUNTY SOCIETY.

*President, J. T. Nicholson.....Bath.
Secretary, Ira M. Hardy.....Washington.

Blount, W. A., Washington Bellevue Med. Coll., 1892.	1892	1894
*Blount, J. G., Washington Bellevue Med. Coll., 1892.	1892	1893
*Bonner, H. M., Aurora Med. Coll. Va., 1897.	1897	1902
*Brown, E. M., Washington Bellevue Med. Coll., 1896.	1896	1901
Bullock, W. J., Belhaven Univ. Pa., 1858.	....	1904
Dixon, W. H., Edwards Med. Coll. Va., 1901.	1901	1901
Hardy, Ira. M., Washington Med. Coll. Va., 1901.	1902	1902
Hunter, H. H., Pinetown Med. Coll. Va., 1900.	1901	1904
Kellum, Wm. D., Belhaven	....	1904
Mariner, N. B., Belhaven Univ. Coll. Med., Va.	1903	1904
*Nicholson, J. T., Bath P. & S., Balto., 1885.	1885	1904
*Nicholson, P. A., Washington P. & S., Balto., 1889.	1889	1901
*Nicholson, S. T., Washington P. & S., Balto., 1881.	1885	1902
*Rodman, Jno. C., Washington Bellevue Med. Coll., 1892.	1892	1895
Staley, S. W., Aurora Med. Coll. S. C., 1901.	1901	1904
*Tayloe, David T., Washington Bellevue Med. Coll., 1885.	1885	1885
Tayloe, Joshua, Washington Bellevue Med. Coll., 1892.	1892	1904

BERTIE COUNTY SOCIETY.

For names see page 585.

BLADEN COUNTY SOCIETY.

President, W. H. G. Lucas.....White Hall.
*Secretary, Newton Robinson .....Elizabethtown.

Members and Address.	*Licensed.*	*Joined State Society.*
Clark, Geo. L., Clarkton..... Univ. N. Y., 1876.	....	1904
*Evans, L. B., Clarkton ..... Univ. Coll. Med., 1900.	1900	1904
Lucas, W. H. G., White Hall..... Univ. Philadel., Pa., 1869.	....	1904
*Robinson, Newton, Elizabethtown ..... Univ. Philadel., Pa., 1869.	....	1904

BRUNSWICK COUNTY SOCIETY.

President, E. G. Goodman .....El Paso.
Secretary, J. Arthur Dosher.....Southport.

Curtis, W. G., Southport ..... Dartmouth Med. Coll., 1846.	....	1904
Dosher, J. Arthur, Southport..... Balto. Med., 1903.	1903	1903
Goley, W. R., Supply..... Univ. Coll. Med., Va. 1901.	1901	1904
Goodman, E. G., El Paso..... Univ. Md., 1891.	1891	1892
Moore, T. V., Phœnix ..... Balto. Med. Coll., 1901.	1901	....
Watson, D. I., Southport..... Univ. Louisville, Ky., 1890.	1890	1891

BUNCOMBE COUNTY SOCIETY.

President, Carl V. Reynolds.....Asheville.
Secretary, Gaillard S. Tennent.....Asheville.

Ambler, C. P., Asheville..... West. Reserve Univ., O., 1889.	1890	1891
Ballard, A. M., Asheville..... Harvard Univ., 1868.	....	1904
Battle, Samuel W., Asheville..... Bellevue, N. Y., 1875.	....	1887
Briggs, H. H., Asheville..... Univ. Yale, 1897.	1901	1903
Brown, T. E. W., Asheville..... P. & S., N. Y., 1900.	1903	1904
Brownson, W. C., Asheville..... Univ. N. Y., 1878.	....	1896

Members and Address.	*Licensed.*	*Joined State Society.*
*Burroughs, Jas. A., Asheville Louisville Med. Coll., 1882.	1884	1889
Calloway, A. W., Asheville Chicago Homeop. Med. Coll., 1895.	1899	1904
Cheeseborough, T. P., Asheville Univ. N. Y., 1891.	1891	1899
Clemenger, F. J., Asheville Univ. Denver, 1902.	1903	1904
Clentz, W. J., Alexander Vanderbilt Univ., 1888. Reg. practice prior to 1885.	....	1904
Cotton, C. E., Black Mountain Univ. Wooster, O., 1889.	1901	1901
Crawford, A., Asheville Ky. School Med., 1854.	....	1904
David, J. E., Biltmore Univ. Pa., 1897.	1897	1904
Drake, J. H., Jr., Asheville Med. Coll. Ala., 1891.	1901	1901
Dunn, W. L., Asheville Univ. Mich., 1900.	1900	1900
*Fletcher, M. H., Asheville Bellevue Med. Coll., 1881.	1881	1881
Glenn, E. B., Asheville Jeff. Med. Coll., 1896.	1896	1899
Harris, I. A., Jupiter One course Jeff. Med. Coll., 1860.	1885	1894
Hemphill, W. E., Arden Balto. Med. Coll., 1892.	1896	1894
Hilliard, Wm. D., Asheville Jeff. Med. Coll., 1878.	1881	1881
Holmes, L. E., Biltmore Univ. Pa., 1897.	1901	1903
Jordan, C. S., Asheville Univ. N. Y., 1890.	1891	1899
*Laird, E. C., Asheville Univ. Md., 1877.	....	1900
Lee, P. H., Asheville Univ. Nashville, 1894.	1898	1904
McBrayer, L. B., Asheville Louisville Med. Coll., 1889.	1891	1899
McCracken, C. M., Fairview Non-Grad. N. C. Med. Col.	1896	1904
McLean, J. N., Democrat Tenn. Med. Col., 1899.	....	1904
Merriwether, F. T., Asheville Univ. Louisville, Ky., 1886.	1888	1888
Merrimon, Louise A., Asheville Woman's Med. Coll., 1900.	1899	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Millender, M. C., Asheville..... Univ. Va., 1887.	1891	1904
Minor, C. L., Asheville..... Univ. Va., 1888.	1895	1898
Morris, E. R., Asheville..... Louisville Med. Coll., 1896.	1896	1899
Morse, L. B., Asheville..... Chicago Homeop. Med. Coll., 1895.	1901	1904
Norton, C. F., Asheville, R. F. D. No. 1..... Univ. Texas, 1899.	1903	1904
Orr, Peter B., Asheville..... Jeff. Med. Coll., 1901.	1901	1904
*Paquin, Paul, Asheville..... Univ. Mo., 1887.	1899	1899
Prioleau, W. H., Asheville..... Med. Coll. S. C., 1893.	1901	1903
Purefoy, Geo. W., Asheville..... Jeff. Med. Coll., 1876.	1884	1904
Reagan, J. A., Weaverville..... Vanderbilt Univ., 1877.	....	1881
Reagan, W. L., Weaverville..... P. & S., Baltimore, 1897.	1881	1894
Reed, C. E., Asheville..... Jeff. Med. Coll., 1891-1895.	1902	1904
Reed, Geo. W., Biltmore..... Vanderbilt Univ., 1895.	....	1904
Reynolds, Carl V., Asheville ..... Univ. N. Y., 1895.	1895	1896
Reynolds, J. H., Asheville..... Louisville Med. Coll., 1903.	1903	1903
von Ruck, Karl Asheville..... Univ. Mich., 1879.	....	1891
von Ruck, S. H., Asheville..... Bellevue Med. Coll., 1899.	1899	1902
Sawyer, James, Asheville..... Bellevue Med. Coll., 1897.	1897	1899
Seveir, Dan. E., Asheville..... Jeff. Med. Coll., 1895.	1895	1899
Seveir, Jos. T., Asheville..... Jeff. Med. Coll., 1895.	1895	1899
*Stevens, M. L., Asheville ..... Balto. Med. Coll., 1891.	1892	1893
Tennent, Gaillard S., Asheville ..... N. C. Med. Coll., 1894.	1894	1898
*Weaver, H. Bascom, Asheville ..... Wash. Univ. Med., 1872.	1881	1881
Whittaker, A. S., Biltmore..... Atlanta Med. Coll., 1857.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Whittington, W. P., Asheville P. & S., Balto., 1882.	1882	1882
Williams, Jno. Hey, Asheville Univ. Iowa, 1862.	1881	1881
Zimmerman, C. St.V., Asheville National Univ., Wash., D. C., 1895.	1903	1904

BURKE COUNTY SOCIETY.

*President, Geo. H. Moran.....Morganton.
*Secretary, Isaac M. Taylor .....Morganton.

*Anders, McG., Connelly's Springs Md. Med., Coll., 1901.	1902	1902
Anderson, Jas. R., Morganton Tulane Univ., 1882.	1885	1904
Henneesee, E. A., Glen Alpine U. S. Grant Univ., 1900.	1902	1904
Laxton, Jos. L., Morganton Wash. Univ., Md., 1868.	....	1891
McCampbell, John, Morganton Balto. Med. Coll., 1894.	1895	1899
Moran, Geo. H., Morganton Univ. Md., 1865.	....	1888
*Murphy, P. L., Morganton Univ. Va., 1870; Univ. Md., 1871.	1873	1873
Phifer, Ed. W., Morganton N. C. Med. Coll., 1902.	1902	1904
Speight, R. H., Jr., Morganton Univ. Md., 1901.	1901	1901
*Taylor, Isaac M., Morganton P. & S., N. Y., 1882.	1883	1883
Warlick, E. S., Morganton Univ. Tenn., 1881.	....	1904

CABARRUS COUNTY SOCIETY.

President, W. H. Lilly.....Concord.
*Secretary, Francis O. Rogers .....Concord.

Archey, L. M., Concord P. & S., Balto., 1885.	1885	1888
Barnhardt, C. H., Mount Pleasant Jeff. Med. Coll., 1895.	1895	1904
Barrier, P. A., Mount Pleasant Long Island Med. Coll., 1861.	1861	1861
Black, J. C., Concord Univ. Md., 1886.	1886	1891

Members and Address.	*Licensed.*	*Joined State Society.*
Burleyson, L. N., Concord Univ. Md., 1891.	1891	1904
*Caldwell, D. G., Concord Univ. Md., 1885.	1885	1885
Flow, J. W., Glass N. C. Med. Coll., 1898.	1903	1904
Gouger, G. J., Tulin Univ. Md., two courses.	1891	1899
Grier, S. A., Harrisburg	....	1904
Jerome, J. R., Georgeville Univ. Md., 1890.	1890	1904
Lafferty, J. S., Concord Univ. Md., 1881.	....	1890
Lilly, W. H., Concord Univ. N. Y., 1860.	1860	1874
Pemberton, W. D., Concord Univ. Md., 1887.	1887	1887
Pharr, T. F., Concord Bellevue Med. Coll., 1875.	1881	1881
Rogers, F. O., Concord Univ. Md., 1901.	1901	1901
Smoot, J. E., Concord Balto. Med. Coll., 1891-1893.	1894	1902
Walker, J. O., Concord Vanderbilt Univ., 1888.	1888	1904
*Young, Robert S., Concord Univ. N. Y., 1881.	1882	1882

CALDWELL COUNTY SOCIETY.

*President, A. A. Kent .....Lenoir.
*Secretary, W. P. Ivey .....Lenoir.

Carter, G. H., Blackstone Univ. N. Y., 1877.	....	1904
Flowers, B. G., Granite Falls, R. F. D Non-graduate; practice prior to 1885.	....	1904
Flowers, G. E., Granite Falls Ico. So. Med. Coll., Ga.; practice prior to 1885.	....	1904
Hunter, J. M., Hartland Louisville Med. Coll., 1896.	1902	1902
*Ivey, W. P., Lenoir Univ. Md., 1885.	1885	1891
Jones, A. D., Granite Falls Louisville Med. Coll., 1876.	....	1904
*Kent, A. A., Lenoir Jeff. Med. Coll., 1885.	1885	1894

Members and Address.	*Licensed.*	*Joined State Society.*
Mattocks, C. J., Lenoir	....	1904
Schell, S. W., Lenoir Balto. Univ., 1899.	1899	1904
White, W. M., Collettsville P. & S., Atlanta, 1899.	1899	1904
*Wright, J. B., Granite Falls Univ. Coll. Med., Va., 1899.	1899	1899

CARTERET COUNTY SOCIETY.

*President, H. H. Dodson ..... Milton.
*Secretary, S. A. Malloy ..... Yanceyville.

Adams, L. C., Atlantic N. C. Med. Coll., 1903.	1903	1904
Chapin, A. B., Beaufort Univ. Philadelphia, Pa., 1868.	....	1904
Clarke, F. M., Beaufort P. & S., Balto., 1893.	1894	1904
Davis, Geo., Beaufort Ky. School Med., 1896.	....	1904
Duncan, C. L., Beaufort Univ. Md., 1902.	1902	1904
George, D. S., Marshallberg N. C. Med. Coll., 1903.	1903	1903
Mason, C. N., Harlow P. & S., Balto., 1882.	....	1904
Maxwell, C. S., Beaufort Univ. South, Tenn., 1901.	1899	1904
Paul, Wm. T., Stacey Univ. Md., 1869.	....	1904

CASWELL COUNTY SOCIETY.

*President, H. H. Dodson ..... Milton.
*Secretary, S. A. Malloy ..... Yanceyville.

Badgett, J. F., Blackwell P. & S., Balto., 1881.	....	1904
*Dodson, H. H., Milton Med. Coll. Va., 1882.	1885	1886
*Gunn, J. L., Ashland Ky. School Med., 1877.	....	1904
*Malloy, S. A., Yanceyville Ky. School Med., 1897.	1898	1903
*McBride, M. H., Milton Univ. Coll. Med., Va., 1901.	1901	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Montgomery, H. M., Burlington..... N. C. Med. Coll., 1903.	1903	1904
Norman, Geo. W., Thompsonville..... Balto. Med. Coll., 1896.	1896	1904
Walker, L. A., Stony Creek..... Univ. Coll. Med., Va., 1898.	1899	1904

CATAWBA COUNTY SOCIETY.

President, Jas. R. Campbell.....Newton.
Secretary, Geo. H. West.....Newton.

Abernethy, H. L., Hickory..... Louisville Med. Coll., 1886.	1887	1904
Abernethy, W. L., Hickory..... Ky. School Med., 1877.	1879	1904
Baker, R. B., Hickory..... Univ. Md., 1852.	....	1904
Campbell, Jas. R., Newton..... Wash. Univ., Md., 1871.	....	1898
Childs, J. A., Hickory..... Med. Coll. S. C., 1898.	1903	1903
Everhart, W. H., Newton..... Univ. Md.. 1903.	1904	1904
Foard, Fred. F., Jugtown..... Louisville Med. Coll., 1886.	1886	1904
Herman, F. L., Conover..... Louisville Med. Coll., 1891.	1891	1904
Johnson, J. T., Hickory..... Univ. Pa., 1861.	....	1904
Little, Q. M., Catawba..... Univ. Md., 1871.	....	1904
Long, Fred. Y., Catawba..... N. C. Med. Coll., 1899.	1898	1904
Long, T. W., Catawba..... Univ. N. Y., 1885.	....	1904
Menzies, H. C., Hickory..... N. C. Med. Coll., 1894.	1894	1894
Moser, D. M., Claremont..... N. C. Med. Coll., 1898.	1896	1904
Shuford, J. H., Hickory..... Univ. Mich., 1901.	1902	1902
West, Geo. H., Newton..... Univ. N. Y., 1872.	1880	1895
Whitsides, B. F., Hickory..... Univ. Md., 1877.	1881	1881
Wilson, W. E., Sherrells Ford..... Louisville Med. Coll., 1886.	1886	1904

CHEROKEE COUNTY SOCIETY.

President, J. F. Abernathy.....Murphy.
*Secretary, S. C. Highway .....Murphy.

Members and Address.	*Licensed.*	*Joined State Society.*
Abernathy, J. F., Murphy.....	1885	1904
*Highway, S. C., Murphy..... Med. Coll. Ohio, 1885.	1904	1904
Patton, W. O., Murphy.....	....	1904
Webb, B. G., Andrews..... Louisville Med. Coll., 1885.	1885	1904

CLEVELAND COUNTY SOCIETY.

President, T. E. McBrayer.....Shelby.
*Secretary, S. S. Royster .....Mooresboro.

Aydolette, J. P., Earls..... Univ. Ky., 1901.	1903	1903
Champion, C. O., Mooresboro..... Atlanta Med. Coll., 1887.	....	1898
Dixon, G. E., Belwood..... P. & S., St. Louis, 1903.	1903	1903
*Ellis, R. C., Shelby..... Univ. Balto., 1886.	....	1901
Falls, B. F., Cleveland Mills..... Univ. Tenn., 1881.	....	1904
Gold, G. M., Lawndale..... Atlanta Med. Coll., 1892.	....	1904
Goode, W. A., Waco..... Atlanta Med. Coll., 1890.	....	1904
Gregg, W. T., Shelby, R. F. D.....	....	1904
Houser, E. A., Fallston..... Univ. Balto., 1902.	1902	1904
Houser, W. H., Cherryville..... N. C. Med. Coll., 1900.	1900	1904
Lattimore, E. B., Lawndale..... Non-graduate N. C. Med. Coll.	1896	1904
Lee, L. V., Lattimore..... Atlanta Med. Coll., 1894.	1897	1904
McBrayer, J. H., Gaffney, S. C..... Atlanta Med. Coll., 1882.	....	1904
McBrayer, T. E., Shelby..... P. & S., Balto., 1879.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
McKay, J. L., Kings Mountain	....	1904
Mitchell, W. F., Shelby Univ. Louisville, 1890.	....	1904
Oates, Geo., Grover Univ. Louisville, Ky., 1894.	1902	1904
Palmer, B. H., Shelby Louisville Med. Coll., 1898.	1898	1904
*Royster, S. S., Mooresboro Tenn. Med. Coll., 1890.	1896	1903
Self, L. L., Toluca Univ. Coll. Med., Va., 1901.	1901	1904
Trent, W. J., Earls	....	1904
*Wood, J. W., Shelby, R. F. D	....	1904

COLUMBUS COUNTY SOCIETY.

President, S. M. Withers.....Chadbourn.
*Secretary, J. Clegg Hall.....Boardman.

Floyd, A. G., Fair Bluff Univ. Md., 1885.	....	1904
Gore, D. N., Tabor	....	1904
*Hall, J. Clegg, Boardman Univ. Coll. Med., Va., 1899.	1899	1904
Jackson, Isaac, Whiteville Univ. Pa., 1843.	....	1904
Jordan, D. B., Cronley Jeff. Med. Coll., 1885.	....	1904
*Maxwell, H. B., Whiteville Univ. Md., 1902.	1902	1902
McGougan, J. M., Cerro Gordo Univ. Nash., Tenn.	....	1904
Thompson, N. A., Whiteville Non-graduate N. C. Med. Col.	1895	1904
Withers, S. M., Chadbourn N. C. Med. Coll., 1902.	1902	1902

CRAVEN COUNTY SOCIETY.

President, Chas. Duffy.....New Bern.
Secretary, R. Du Val Jones.....New Bern.

*Caton, Geo. A., New Bern Med. Coll. Va., 1898.	1898	1904
*Covington, L. C., Vanceboro Univ. Coll. Med., Va., 1901.	1902	....
Duffy, Charles, New Bern Univ. N. Y., 1859.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Duffy, Francis, New Bern Univ. Va., 1868.	1872	1872
Hughes, F. W., New Bern Univ. Pa., 1880.	1885	1904
Jones, R. DuVal, New Bern Univ. Md., 1896.	1897	1904
Pollock, Raymond, Dover Jeff. Med. Coll., 1897.	1900	1900
Primrose, R. S., New Bern Bellevue Med. Coll., 1889.	1890	1904
Rhein, J. F., New Bern Bellevue Med. Coll., 1894.	1893	1904

CUMBERLAND COUNTY SOCIETY.

President, T. D. Haigh.....Fayetteville.
*Secretary, John D. MacRae .....Fayetteville.

Averitt, K. G., Stedman Balto. Med. Coll., 1893.	1893	1902
Graham, Geo. A., Raeford Univ. N. Y., 1876.	....	1904
Haigh, T. D., Fayetteville Univ. N. Y., 1851.	....	1874
Highsmith, J. F., Fayetteville Jeff. Med. Coll., 1889.	1889	1893
Highsmith, Seavy, Hope Mills Univ. Med. Coll., Va., 1901.	1901	1902
*MacRae, John D., Fayetteville Univ. Nashville, 1897.	1899	1899
Marsh, J. H., Fayetteville Jeff. Med. Coll., 1889.	1889	1890
McGougan, J. V., Fayetteville Univ. Md., 1893.	1893	1904
McKethan, John A., Fayetteville N. C. Med. Coll., 1901.	1901	1904
*Rose, A. S., Fayetteville Univ. Coll. Med., Va., 1901.	1901	1904
*Watson, Leon, Hope Mills N. C. Med. Coll., 1900.	1900	1904

CURRITUCK COUNTY SOCIETY.

President, Henry M. Shaw.....Shawsboro.
Secretary, Stuart M. Mann, Moyock.....Moyock.

*Griggs, W. T., Poplar Branch Univ. Va., 1896.	1896	1901
Mann, Stuart M., Moyock P. & S., Balto., 1895.	1895	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Rutter, F. W., Moyock ..... P. & S., Balto., 1885.	1885	1885
Shaw, Henry M., Shawsboro..... Wash. Univ., Md., 1871.	....	1904

DAVIDSON COUNTY SOCIETY.

*President, C. A. Julian.....Thomasville.
*Secretary, D. J. Hill .....Lexington.

Anderson, Abel, Denton	....	1904
Beall, J. F., Linwood..... Ico. Univ., N. Y., 1865.	1885	1887
Bird, Joseph, Thomasville	....	1904
Buchanan, E. J., Lexington..... Univ. Md., 1892.	1892	1900
*Cathell, J. E., Linwood, R. F. D. ..... Univ. Md., 1899.	1902	1902
Dorsett, H. W., Bethany..... Jeff. Med. Coll.	1885	1885
Fitzgerald, J. Y., Jackson Hill..... Jeff. Med. Coll., 1889.	1889	1904
*Hill, D. J., Lexington ..... P. & S., Balto., 1893.	1893	1894
Hill, Joel, Lexington ..... P. & S., Balto., 1880.	1885	1886
Hill, W. L., Lexington, R. F. D..... P. & S., Balto., 1893.	1893	1904
*Julian, C. A., Thomasville ..... Louisville Med. Coll., 1888.	1891	1893
Mock, J. H., Thomasville..... Med. Coll. Va., 1898.	1898	1904
Myers, J. A., Lexington.....	....	1904
Vestal, W. J., Lexington..... P. & S., Balto., 1883.	....	1893
Zimmerman, R. U., Lexington, R. F. D.....	....	1904

DAVIE COUNTY SOCIETY.

President, M. D. Kimbrough.....Mocksville.
Secretary, W. C. Martin.....Mocksville.

Eyerly, A. B., Cooleemee..... Univ. Coll. Med., Va., 1896.	1896	1904
Copple, T. M., Cooleemee..... Univ. Md., 1900.	1899	1904
Hartley, H. H., Fork Church..... Univ. Nashville, 1900.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Kimbrough, M. D., Mocksville.... Univ. Pa., 1860.	....	1904
Martin, W. C., Mocksville.... P. & S., Balto., 1888.	1888	1904
Rierson, R. L., Cooleemee.... Univ. N. Y., 1887.	1898	1898
Rodwell, J. W., Mocksville.... P. & S., Balto., 1896.	1895	1896

DUPLIN COUNTY SOCIETY.

*President, John M. Faison.....Faison.
Secretary, B. R. Graham.....Wallace.

Carroll, J. W., Wallace.... Univ. Md., 1903.	1903	1903
*Faison, Jno. M., Faison .... Univ. Va., 1885.	1885	1885
Graham, B. R., Wallace.... Univ. Va., 1895.	1895	1899
Hussey, L., Warsaw.... Univ. Pa., 1853.	....	1904
Jones, A. J., Kenansville.... Wash. Univ. Md., 1868.	1880	1904
Smith, O. F., Magnolia.... Univ. Coll. Med., 1899.	1899	1904
Williams, A. F., Kenansville.... Univ. Md., 1901.	1901	1904
*Williams, J. M., Warsaw.... Univ. Md., 1902.	1902	1902

DURHAM COUNTY SOCIETY.

*President, A. Cheatham .....Durham.
*Secretary, Geo. H. Ross .....East Durham.

*Boddie, N. P., Durham .... P. & S., Balto., 1883.	1883	1883
*Carr, A. G., Durham .... Bellevue Med. Coll., 1870.	....	1837
Carr, John R., Durham.... Jno. Hopkins, 1904.	....	1904
*Cheatham, Arch., Durham .... Univ. Md., 1888.	1888	1888
*Graham, W. A., Durham .... Univ. Pa., 1899.	1901	1901
*Hicks, C. S., Durham .... Univ. Md., 1904.	1904	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Hicks, W. N., Durham Med. Coll. Va., 1864.	....	1901
*Holloway, R. L., West Durham Med. Coll. Va., 1893.	1893	1904
Holt, E. M., Willardsville Univ. N. Y., 1856.	....	1904
*Holt, W. P., Willardsville Jeff. Med. Coll., 1895.	1895	1901
*Johnson, N. M., Durham Wash. Univ. Md., 1876.	1879	1904
*Mann, T. A., Durham Univ. Md., 1903.	1903	1903
*Manning, J. M., Durham Bellevue Med. Coll., 1882.	1884	1891
*Nichols, R. E., Gorman Med. Coll. Va., 1890.	1890	1904
*O'Kelly, J. M., Durham Ky. School Med., 1877.	....	1883
*Patterson, E. C., West Durham Univ. Md., 1903.	1903	1903
*Ross, Geo. H., East Durham Univ. Tenn., 1899.	1899	1904
Ward, M. P., Gorman	....	1904
*Wilson, H. F., Morrisville Univ. Ga., 1891.	1902	1904
*Young, W. D., East Durham P. & S., Balto., 1889.	1894	1901

EDGECOMBE COUNTY SOCIETY.

President, R. L. Savage.....Conetoe.
*Secretary, S. N. Harrell.....Tarboro.

*Baker, J. M., Tarboro Univ. Md., 1879.	1879	1879
Carr, J. B., Old Sparta Univ. Md., 1885.	1885	1885
*Harrell, S. N., Tarboro Univ. Md., 1897.	1897	1904
Killebrew, C. B., Rocky Mount Univ. Pa., 1870.	....	1904
Mercer, W. P., Elm City Univ. N. Y., 1879.	1879	1904
Pitt, M. B., Old Sparta Univ. Pa., 1869.	....	1904
Savage, R. L., Conetoe Univ. Md., 1897.	1897	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Speight, R. H., Whittakers ..... Univ. Md., 1870.	1875	1875
Staton, L. L., Tarboro..... Univ. N. Y., 1867.	1869	1900
Thigpen, W. J., Tarboro..... Jeff. Med. Coll., 1900.	1901	1901
Walton, C. B., Macclesfield..... P. & S., Balto., 1893.	1893	1904

FORSYTH COUNTY SOCIETY.

President, H. S. Lott.....Winston.
*Secretary, R. D. Jewett .....Winston.

Ashworth, W. C., Kernersville..... Coll. P. & S., Balto., 1892.	1892	1904
*Bahnson, H. T., Winston..... Univ. Pa., 1867.	1869	1869
Bynum, John, Winston ..... Univ. N. Y., 1892.	1892	1896
Bynum, Wade H., Winston..... Univ. Coll. Med., Va., 1900.	1900	1900
Dalton, D. N., Winston..... Univ. N. Y., 1881.	1885	1886
Davis, A. P., Winston..... Ky. School Med., 1894.	1896	1904
Fearrington, J. P., Winston..... Univ. Md., 1887.	1887	1904
Fulp, E., Fulp..... Univ. N. Y., 1882.	....	1896
Haines, J. L., Winston..... Univ. Md., 1902.	1902	1902
*Jewett, R. D., Winston..... Univ. Va., 1888.	1890	1890
Kapp, H. H., Winston..... Jeff. Med. Coll., 1901.	1901	1904
*Linville, A. Y., Winston..... Univ. N. Y., 1889.	1889	1896
Linville, W. C., Kernersville..... Univ. Md., 1903.	1903	1903
*Lockett, E. A., Winston..... Univ. Pa., 1902.	1904	1904
Lott, H. S., Winston..... Univ. Ga., 1884.	1888	1888
Pfohl, S. F., Winston..... Univ. Pa., 1894.	1898	1898
Shaffner, J. F., Winston..... Jeff. Med. Coll., 1860.	....	1867

Members and Address.	*Licensed.*	*Joined State Society.*
Shaffner, J. F., Jr., Winston..... Univ. Pa., 1899.	1900	1903
Spainhour, E. F., Winston..... Balto. Med. Coll., 1898.	1898	1898
*Spencer, W. O., Winston..... Jeff. Med. Coll., 1891.	1891	1894
*Strickland, E. F., Bethania..... Univ. N. Y., 1887.	1887	1903
Summers, C. L., Winston..... Univ. Md., 1887.	1891	1896
Williams, J. D., Lewisville..... Vanderbilt Univ., 1898.	1898	1898
*Wright, J. T., Winston..... P. & S., Balto., 1892.	1892	1904

FRANKLIN COUNTY SOCIETY.

*President, J. E. Malone .....Louisburg.
*Secretary, S. P. Burt .....Louisburg.

*Burt, S. P., Louisburg..... P. & S., Balto., 1896.	1896	1904
Floyd, R. P., Louisburg, R. F. D..... Med. Coll. S. C.	....	....
Harris, J. H., Franklinton..... Bellevue Med. Coll., 1886.	1886	1904
*Hatch, P. R., Youngsville ..... University Louisville, 1880.	....	1904
Henderson, R. B., Franklinton..... Univ. Md., 1887.	1887	1904
*Malone, J. E., Louisburg ..... Bellevue Med. Coll., 1875.	....	1904
Mann, J. J., Stallings..... Non-graduate Balto. Med. Coll.	1886	1904
*Riddick, I. G., Youngsville..... Bellevue Med. Coll., 1886.	1886	1904
Reitzel, C. E., Youngsville..... P. & S., Atlanta, 1902.	1902	1902
*Wheless, J. R., Centreville ..... P. & S., Balto., 1891.	1891	1904
Winston, A. R., Franklinton..... Bellevue Med. Coll., 1899.	1899	1900
*Yarborough, R. F., Louisburg ..... Columbian Univ., D. C., 1898.	1899	1899

GASTON COUNTY SOCIETY.

*President, R. M. Reid.....Gastonia.
*Secretary, L. N. Glenn.....McAdensville.

Members and Address.	*Licensed.*	*Joined State Society.*
Adams, C. E., Gastonia..... Univ. Md., 1878.	1885	1904
Anders, McT. G., Gastonia..... Md. Med. Coll., 1901.	1902	1902
*Boyte, E. C., Mount Holly..... Balto. Med. Coll., 1893.	1898	1898
Bunting, R. C., Gastonia..... Univ. Md., 1898.	1897	1904
Davis, W. W., Belmont..... Ky. School Med., 1875.	....	1904
Eddleman, H. M., Gastonia..... Ky. School Med., 1886.	....	1904
Garrison, D. A., Bessemer City..... Louisville Med. Coll., 1896.	1896	1899
*Glenn, H. F., Gastonia ..... P. & S., Atlanta, 1900.	1900	1904
*Glenn, L. N., McAdensville..... Univ. Md., 1897.	1897	1904
Hay, W. S., Bessemer City ..... Univ. Ga., 1890.	1895	1904
Hunter, B. R., Kings Mountain..... Louisville Med. Coll., 1896.	1897	1904
Hunter, M. C., Stanley..... P. & S., Balto., 1882.	1882	1904
Jenkins, J. H., Dallas..... Ky. School Med., 1888.	1888	1904
Mathewson, J. P., Belmont..... N. C. Med. Coll., 1902.	1902	1902
Patrick, G. R., Lowell..... Univ. Md., 1879.	....	1904
Quickle, T. C., Stanley..... Tulane Univ., 1899.	1899	1904
*Reid, R. M., Gastonia..... Univ. N. Y., 1890.	1890	1903
Robinson, Frank, Lowell ..... Bellevue Med. Coll., 1879.	1881	1904
Sloan, J. M., Gastonia..... Louisville Med. Coll., 1891.	1891	1904
Twitty, J. C., Gastonia..... Balto. Med. Coll., 1892.	1892	1904
*Wallace, J. B., Mt. Holly..... Univ. Md., 1897.	1897	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Wilkins, S. A., Dallas Univ. Ky., 1902.	1903	1903
*Wilson, F. G., Gastonia Univ. Md., 1896.	1896	1899

GATES COUNTY SOCIETY.

*President, E. F. Corbell.....Sunbury.
Secretary, George C. Brooks, ...Sunbury.

Brooks, G. C., Sunbury P. & S., Balto., 1884.	....	1904
*Corbell, E. F., Sunbury Univ. Md., 1886.	1893	1900
Lee, W. O. P., Reynoldson P. & S., Balto., 1874.	....	1904
Williams, George D., Gatesville P. & S., Balto., 1897.	1897	1904

GRAHAM COUNTY SOCIETY.

President, M. F. Maxwell .....Robbinsville.
Secretary, R. J. Orr .....Robbinsville.

Brock, G. F., Robbinsville Registered on oath.	....	1904
Howell, S. F., Robbinsville Registered on oath.	....	1904
Hooper, L. D., Robbinsville, R. F. D. Registered on oath.	....	1904
Maxwell, M. T., Robbinsville Southern Med. Coll., 1885.	....	1904
Orr, R. J., Robbinsville Louisville Med. Coll., 1893.	....	1904

GRANVILLE COUNTY SOCIETY.

*President, S. D. Booth.....Oxford.
*Secretary, G. T. Sikes.....Grissom.

*Booth, S. D., Oxford Med. Coll., Va.	1885	1885
*Booth, T. L., Oxford Med. Coll. S. C., 1882.	....	1890
Cannaday, S. H., Oxford Univ. Va., 1887.	....	1904
*Cozart, W. W., Dutchville Med. Coll., S. C., 1856.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Daniel, N. C., Oxford N. C. Med. Coll., 1895.	1895	1899
*Hays, Ben K., Oxford Univ. Coll. Med., Va., 1894.	1894	1896
Meadows, E. B., Oxford R. F. D., Univ. Coll. Med., Va., 1901.	1901	1901
Morris, J. A., Oxford, R. F. D. Vanderbilt Univ., 1893.	1893	1899
*Sanderford, J. F., Creedmore P. & S., Balto., 1890.	1890	1891
*Sikes, G. T., Grissom Univ. Md., 1884.	1884	1884

GREENE COUNTY SOCIETY.

*President, Albert West ..... Speights Bridge, R. F. D.
Secretary, G. C. Edwards ..... Hookerton.

Edwards, G. C., Hookerton Bellevue Med. Coll., 1893.	1893	1893
Maxwell, C. S., Snow Hill Univ. South, Sewanee, 1901.	1899	1904
*Palmer, J. R., Hookerton Atlanta Med. Coll., 1894.	1894	1900
*Patrick, J. E., Snow Hill Univ. Coll. Med., Va., 1900.	1900	1900
*West, Albert, Speights Bridge, R. F. D.	....	1904
*Whittington, W. W., Bullhead Louisville Med. Coll., 1895.	1895	1897

GUILFORD COUNTY SOCIETY.

*President, M. F. Fox ..... Guilford College.
Secretary, Wm. J. Richardson ..... Greensboro.

Armfield, D. A., Jamestown Jeff. Med. Coll., 1861.	....	1904
*Banner, C. W., Greensboro Univ. Md., 1899.	1899	1901
*Battle, J. T. J., Greensboro P. & S., Balto., 1884.	1884	1889
Beall, W. P., Greensboro Jeff. Med. Coll., 1879.	1879	1879
Boyles, H. C., Greensboro P. & S., Balto., 1903.	1903	1904
Brodnax, J. G., Greensboro Univ. Va., 1849.	....	1888
Brooks, J. E., Greensboro Univ. Coll. Med., Va., 1897.	1897	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Burrus, John T., High Point..... N. C. Med. Col., 1898.	1897	1898
Burton, J. W., High Point..... Wash. Univ., Md., 1872.	....	1904
Coble, W. A., Brick Church.....		1904
Davis, W. C., Summerfield..... Univ. Balto., 1896.	....	1904
Fortune, A. F., Greensboro..... Univ. Coll. Med., 1900.	1900	1904
*Fox, M. F., Guilford College..... P. & S. Balto., 1881.	1885	1885
Gilmer, C. S., Greensboro..... Univ. N. Y., 1891.	1891	1894
*Gordon, J. R., Jamestown ..... Univ. N. Y., 1891.	1891	1894
Gray, Claiborn, Pleasant Garden.....	....	1904
*Grimsley, J. E., Greensboro..... Univ. Va., 1883.	1883	1884
*Harris, Joy, (female,) Greensboro..... Womans Med. Coll., Balto., 1896.	1896	1898
Harrison, Edmund, Greensboro..... Univ. Coll. Med., Va., 1896.	1900	1900
*Hilton, J. J. Stokesdale..... Univ. Md., 1886.	....	1904
Hughes, George R., Greensboro..... Univ. N. Y., 1888.	1888	1894
Jones, J. W., Browns' Summit..... Missouri Med. Coll., 1875.	....	1904
*Jordan, G. E., Gibsonville ..... P. & S., Balto., 1891.	1891	1904
Knight, W. P., Greensboro..... Balto. Med. Coll., 1898.	1898	1898
Ledbetter, A. E., Greensboro..... Univ. Mr., 1888.	1888	1904
*Little, Thos. R., Greensboro..... Univ. Pa., 1900.	1903	1903
*Long, John W., Greensboro ..... Vanderbilt Univ., 1883.	1884	1884
Matthews, J. B., Greensboro..... Med. Coll., Va., 1896.	1896	1904
Meadows, W. J., Greensboro..... Med. Coll. Ala., 1894.	1899	1904
Michaux, E. R., Greensboro..... Univ. N. Y., 1889.	1889	1904
Moore, J. L., High Point..... P. & S., Balto., 1886.	1886	1901
Paddison, J. R., Oak Ridge..... Univ. Md., 1902.	1902	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Reitzel, J. R., High Point Univ. Tenn., 1892.	1895	1896
*Reives, J. T., Vandalia Louisville Med. Coll., 1891.	1892	1904
Richardson, W. J., Greensboro Jeff Med. Coll., 1889.	1889	1904
*Roberson, Chas., Greensboro Long Island Med. Coll., 1897.	1897	1901
Scott, C. L., Greensboro Univ. Md., 1897.	1899	1903
Stamey, E. L., Greensboro Atlanta Med. Coll., 1895.	1895	1904
*Stanton, D. A., High Point Vanderbilt Univ., 1887.	1887	1891
Thames, John, Greensboro Louisville Med. Coll., 1894.	1895	1895
Turner, J. A., High Point Louisville Med. Coll., 1886.	....	1891
*Turner, J. P., Greensboro Univ. Md., 1896.	1897	1904
Williams, J. R., Jamestown	....	1904
Wilson, A. R., Greensboro Jeff. Med. Coll., 1882.	1882	1882
*Williams, John Roy, Greensboro Univ. Mich., 1903.	1904	1904

HALIFAX COUNTY SOCIETY.

President, John A. Collins.....Enfield.
Secretary, A. S. Harrison.....Enfield.

Collins, John A., Enfield Bellevue Med. Coll., 1869.	1880	1904
*Ferguson, H. B., Halifax Jeff. Med. Coll., 1882.	1882	1904
Green, I. E., Weldon	1873	1904
Harrison, A. S., Enfield Univ. Md., 1888.	1888	1904
*Leggett, K., Hobgood Ky. School Med., 1884.	1885	1885
*Register, F. M., Tillery Ky. School Med., 1893.	1891	1904
Zollicoffer, A. B., Weldon Univ. Pa., 1875.	....	1904
Zollicoffer, D. B., Weldon P. & S., Balto., 1886.	1886	1904

HARNETT COUNTY SOCIETY.

President, M. W. Harper.....Dunn.
Secretary, O. L. Denning.....Dunn.

Members and Address.	*Licensed.*	*Joined State Society.*
Denning, O. L., Dunn..... Univ. Va., 1887.	1889	1904
Harper, M. W., Dunn..... Louisville Med. Coll.	....	1886
Hicks, I. F., Dunn..... N. C. Med. Coll., 1902.	1902	1904
Highsmith, Chas., Dunn..... Balto. Med. Coll., 1898.	1898	1898
*Hudson, W. L., Dunn..... Ky. School Med., 1876.	1883	1894
*McFadyen, A. A., Duke..... N. C. Med. Coll., 1903.	1903	1904
McKay, J. A., Dunn, R. F. D..... S. C. Med. Coll., 1856.	....	1904
*McKay, J. F., Dunn, R. F. D..... S. C. Med. Coll., 1886.	....	1904
McLean, J. W., Godwin..... N. C. Med. Coll., 1902.	1902	1902
McNeil, Wm. M., Dunn..... Univ. N. Y., 1858.	....	1904
*Moore, F. T., Benson ..... P. & S., Balto., 1885.	....	1904
Rowland, W. J., Benson..... Non-graduate.	....	1904
Sexton, C. H., Dunn..... Univ. Md., 1890.	1890	1904

HAYWOOD COUNTY SOCIETY.

*President, Thos. Stringfield .....Waynesville.
*Secretary, J. Howell Way.....Waynesville.

*Abel, J. F., Waynesville..... Univ. Balto., 1892.	1893	1899
Allen, R. L., Waynesville..... Univ. Md., 1885.	1885	1899
*Davis, F. M., Clyde..... Vanderbilt Univ., 1894.	1894	1904
McCracken, J. R., Crabtree..... N. C. Med. Coll., 1902.	1902	1903
McFadyen, H. L., Waynesville..... Univ. N. Y., 1876.	....	1904
Kirkpatrick, Wm. L., Pacolet, S. C. ..... Vanderbilt Univ., 1894.	1894	1895

Members and Address.	*Licensed.*	*Joined State Society.*
Mease, J. H., Canton Vanderbilt Univ., 1893.	1893	1894
Medford, S. B., Clyde Univ. Nash. Tenn., 1896.	1896	1904
Moore, J. E., Canton Tenn. Med. Coll., 1899.	1898	1899
Rogers, McLean, Geary, Okla., P. & S., Atlanta, 1902.	1902	1903
*Stringfield, Thos., Waynesville Vanderbilt Univ., 1898.	1898	1899
Walker, R. L., Clyde Ky. School Med., 1889.	....	1904
*Way, J. Howell, Waynesville Vandervilt Univ., 1886.	1885	1887
Wilson, J. E., Sonoma Ico. Louisville Med. Coll., 1876.	....	1903

HENDERSON POLK COUNTY SOCIETY.

President, J. G. Waldrop.....Hendersonville.
Secretary, A. B. Drafts.....Hendersonville.

Allen, T. A., Hendersonville S. C. Med. Coll.	....	1904
Drafts, A. B., Hendersonville Univ. Va., 1896.	1899	1903
Edgerton, J. L., Hendersonville Univ. Md., 1877.	....	1890
Few, C., Hendersonville Univ. Md., 1875.	....	1904
Goelet, E. B., Saluda Tulane Univ., 1888.	1888	1888
Grady, Earle, Tryon Univ. Md., 1894.	1895	1899
Greenwood, S. E., Mills River Tenn. Med. Coll., 1902.	1903	1904
Kirk, Wm. R., Hendersonville Central Univ. of Ky., 1890.	1901	1903
Russell, Lloyd P., Fletchers Univ. Nashville, 1901.	1902	1903
Waldrop, J. G., Hendersonville P. & S. Balto., 1876.	....	1891

HERTFORD COUNTY SOCIETY.

*President, S. S. Daniels.....Winton.
*Secretary, J. Rainey Parker.....Union.

*Daniels, S. S., Winton Univ. Md., 1887.	1887	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Freeman, W. G., Murfreesboro..... Univ. Pa., 1861.	....	1904
Gary, R. H., Murfreesboro..... P. & S. Balto., 1881.	....	1904
Griffin, C. F., Winton..... P. & S. Balto., 1893.	1893	1900
*Parker, J. Rainey, Union..... Balto. Med. Coll., 1898.	1898	1898
Mitchell, J. H., Ahoskie..... P. & S., Balto., 1879.	....	1904

IREDELL-ALEXANDER COUNTY SOCIETY.

President, S. W. Stevenson.....Mooresville.
Secretary, J. E. McLaughlin.....Statesville.

Adams, M. R., Statesville..... Univ. Md., 1878.	1884	1884
Allen, J. A., Cool Spring..... Univ. Coll. Med., Va., 1901.	1901	1904
*Anderson, Thos. E., Statesville..... Jeff. Med. Coll., 1878.	1879	1879
Bell, A. E., Mooresville..... Univ. Md., 1899.	1897	1904
Carson, C. J., Taylorsville.....	....	1904
Cloninger, L. V., Elmwood..... N. C. Med. Coll., 1901.	1901	1904
Hall, E. A., Dunlap.....	....	1904
Harrell, L., Statesville	....	1900
Hellar, O. L., Taylorsville..... Balto. Med. Coll., 1892.	....	1904
*Houck, Albert, Statesville ..... P. & S. Balto., 1884.	1891	1893
Jurney, P. C., Turnersburg..... Med. Coll., Va., 1901.	1901	1904
King, J. E., Statesville, R. F. D..... Jeff. Med. Coll., 1868.	....	1904
*Klutz, E. E., Troutman ..... Med. Coll. Va., 1884.	....	1896
Long, H. F., Statesville..... Univ. Md., 1892.	1892	1899
McClelland, J. R., Mooresville..... Univ. Md., 1873.	1878	1895
McLaughlin, J. E., Statesville..... Univ. Md., 1886.	1886	1896
Moore, N. G., Mooresville..... Jeff. Med. Coll., 1891.	1891	1904
Nicholson, W. G., Harmony..... Louisville Med. Coll., 1881.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Phifer, F. W., Statesville Univ. Md., 1902.	1902	1904
*Skinner, L. C., Island N. C. Med. Coll., 1902.	1902	1902
Sisk, J. A.,Harmony N. C. Med. Coll., 1902.	1902	1904
Stevenson, S. W., Mooresville Wash. Univ. Md., 1873.	1879	1904
Young, James, Mooresville Non-graduate N. C. Med. Coll.	1896	1904
Yount, E. M., New Sterling N. C. Med. Coll., 1902.	1902	1902

JACKSON COUNTY SOCIETY.

*President, J. M. Candler.....Dillsboro.
Secretary, George P. Edwards.....Sylva.

Burgin, H. F., Webster Univ. Md., 1874.	1879	1904
*Candler, Chas. Z., Dillsboro P. & S. Atlanta, 1901.	1901	1904
*Candler, J. M., Dillsboro	....	1904
Davis, R. L., Sylva Sou. Med., Ga., 1891.	....	1893
Edwards, Geo. P., Sylva Univ. Ga., 1902.	1902	1904
*Nichols, A. A., Painter Univ. Nashville, 1898.	1904	1904
Self, Wm., Webster	....	1904

JOHNSON COUNTY SOCIETY.

*President, Geo. J. Robinson.....Smithfield.
Secretary, Thel. Hooks.....Smithfield.

*Grady, J. C., Kenley P. & S. Balto., 1886.	....	1904
Hooks, Thel., Smithfield Med. Coll. Va., 1901.	1901	1903
Johnson, Floyd, Benson Memphis Hosp. Coll. Med., 1903.	1903	1904
Lassiter, D. B., Benson	....	1904
Munns, L. A., Smithfield P. & S. Balto., 1885.	1888	1904
Moore, F. T. Benson	....	1904
*Noble, R. J., Selma Ky. School Med., 1875.	1878	1878

Members and Address.	*Licensed.*	*Joined State*
*Parker, G. E., Benson P. & S. Balto., 1886.	....	*Joined* 1904
Person, J. B., Selma Med. Coll. Va., 1897.	1897	1900
*Robinson, G. J., Smithfield Jeff. Med. Coll., 1882.	1884	1884
*Wharton, L. D., Smithfield Tulane Univ., 1893.	1893	1894
*Young, J. J., Clayton P. & S. Balto., 1897.	1896	1904

LENOIR COUNTY SOCIETY.

President, R. W. Wootten.....Kinston.
Secretary, W. F. Hargrove.....Kinston.

*Green, J. C., LaGrange Med. Coll. Va., 1900.	1900	1904
Hargrove, W. F., Kinston Univ. Md., 1901.	1901	1901
Hodges, J. M., LaGrange Bellevue Med. Coll., 1883.	1883	1904
Monk, H. G., Trenton Med. Coll. Va., 1896.	1896	1904
*Parrott, Jas. M., Kinston Tulane Univ., 1895.	1895	1896
Parrott, W. T., Kinston Tulane Univ., 1899.	1899	1901
*Pridgen, C. L., Kinston Jeff. Med. Coll., 1901.	1901	1904
Smithwick, J. W. P., LaGrange Univ. Md., 1895.	1897	1898
Tull, Henry, Kinston Univ. Pa., 1876.	1876	1876
*Whittaker, R. A., Kinston P. & S. Balto., 1885.	1885	1885
Woodley, C. B., Kinston Bellevue Med. Coll., 1886.	1886	1904
Wootten, R. W., Kinston Univ. Va., 1870.	....	1904

LINCOLN COUNTY SOCIETY.

*President, T. F. Costner.....Lincolnton.
Secretary, L. A. Crowell.....Lincolnton.

*Abernethy, H. H., Denver Louisville Med. Coll., 1894.	1894	1898

Members and Address.	*Licensed.*	*Joined State Society.*
Costner, George H., Lincolnton..... Univ. Md., 1901.	1902	1902
*Costner, T. F., Lincolnton ..... Jeff. Med. Coll., 1882.	....	1902
Crowell, L. A., Lincolnton..... Balto. Med. Coll., 1892.	1892	1898
Hoover, Chas. H., Lincolnton, R. F. D..... Balto. Med. Coll., 1903.	1903	1904
Killian, R. B., Lincolnton, R. F. D..... .. Louisville Med. Coll., 1885.	1885	1904
Kiser, W. C., Reepsville..... Sou. Med. Coll., Ga., 1889.	....	1904
Petrie, R. W., High Shoals..... Univ. Md., 1903.	1903	1903
Saine, John W., Lincolnton..... Louisville Med. Coll., 1891.	1891	1904
*Thompson, C. D., Lowesville..... Univ. Tenn., 1901.	1901	1904
Wise, J. S., Lincolnton..... Ky. School Med., 1890.	1899	1904

MACON-CLAY COUNTY SOCIETY.

*President, S. H. Lyle.....Franklin.
Secretary, W. A. Rogers.....Franklin.

Browner, J. A., Aquone.....	....	1904
*Lyle, S. H., Franklin..... Vanderbilt Univ., 1882.	1881	1904
Rogers, W. A., Franklin..... Univ. Nashville, 1898.	1898	1898
Siler, F. L., Franklin..... Univ. Nashville, 1897.	1895	1904
Sullivan, J. M., Hayesville..... Atlanta Coll. P. & S., 1900.	....	1904

MADISON COUNTY SOCIETY.

President, J. H. Baird.....Mars Hill.
Secretary, W. J. Weaver.....Marshall.

Baird, J. H., Mars Hill.....		1904
Burnett, I. E., Big Laurel.....		1904
English, I. L., English.....		1904
Frisbee, J. T., Lynch.....		1904
Reynolds, J., Joe.....		1904
Roberts, Frank, Marshall..... Jeff. Med. Coll., 1892.	1892	1902

Members and Address.	*Licensed.*	*Joined State Society.*
Robinson, W. F., Mars Hill Vanderbilt Univ., 1896.	1903	1904
Tilson, J. C., Haleweed Ico. P. & S. Balto., 1884-5.	1885	1904
Weaver, W. J., Marshall Jeff. Med. Coll., 1898.	1897	1903
Woody, S. B., Spring Creek Vanderbilt Univ., 1892.	1898	1898

MARTIN COUNTY SOCIETY.

President, R. H. Hargove.....Robersonville.
*Secretary, W. H. Harrell.....Williamston.

Hargrove, R. H., Robersonville Univ. Md., 1877.	1879	1879
*Harrell, W. H., Williamston Med. Coll. Va., 1885.	1885	1890
Knight, J. B., Williamston P. & S. Balto., 1885.	1885	1891
*Long, B. L., Hamilton Univ. Md., 1880.	....	1904
Nelson, R. J., Robersonville Louisville Med. Coll., 1890.	1890	1893
Smithwick, J. E., Jamesville Univ. Md., 1897.	1897	1904
Warren, W. E., Williamston Non-Graduate Univ. N. Y.,	1893	1904

McDOWELL COUNTY SOCIETY.

President, B. A. Cheek.....Marion.
Secretary, G. S. Kirky.....Marion.

Ashworth, B. L., Marion P. & S. Balto., 1892.	1893	1895
Cheek, B. A., Marion Univ. Pa., 1860.	....	1904
Garren, R. H., Old Fort Univ. Nashville, 1900.	1901	1904
Gilbert, W. W., Rocky Pass	....	1904
Justice, M. L., Nealsville Non-Graduate N. C. Med. Coll.	1897	1904
Kirby, Guy S., Marion Univ. Coll. Med., Va., 1897.	1897	1903
Morphew, M. F., Marion P. & S. Balto., 1883.	....	1893
*Reid, G. P., Eclipse Univ. Coll. Med. Va., 1895.	1894	1899

MECKLENBURG COUNTY SOCIETY.

President, Henry Q. Alexander.....Matthews, R. F. D.
Secretary, Parks M. King.....Charlotte.

Members and Address.	*Licensed.*	*Joined State Society.*
Abernethy, J. S., Charlotte, R. F. D.....	....	1904
Alexander, Annie L., Charlotte..... Woman's Med. Coll., Pa., 1884.	1885	1885
Alexander, J. R., Charlotte..... Univ. Md., 1894.	1894	1898
Alexander, Henry Q., Matthews..... Univ. Md., 1888.	1888	1904
Austin, J. A., Charlotte..... Jeff. Med. Coll., 1887.	1887	1887
Brevard, R. J., Charlotte ..... Univ. N. Y., 1872.	....	1887
Bruner, J., Matthews.....		1904
Craven, W. P., Charlotte, R. F. D.....	....	1904
*Crowell, A. J., Charlotte..... Univ. Md., 1893.	1892	1894
*Crowell, S. M., Charlotte ..... Univ. Md., 1895.	1895	1898
*De Armond, J. Mc., Mint Hill..... Univ. Md., 1886.	1886	1887
Dugoid, J. W., Charlotte..... Univ. Md., 1892.	1893	1904
*Faison, I. W., Charlotte ..... Bellevue Med. Coll., 1878.	1878	1878
Gibbon, Robt. L., Charlotte..... Jeff. Med. Coll., 1887.	1887	1890
Graham, Joseph, Charlotte..... Jeff. Med. Coll., 1869.	....	1874
Graham, W. A., Charlotte..... P. & S. N. Y., 1888.	1889	1890
Hall, P. B., Paw Creek..... N. C. Med. Coll., 1903.	1903	1904
Hawley, F. O., Charlotte..... Univ. Edinburgh, Scot., 1868.	....	1904
Henderson, S. M., Croft..... Univ. Md., 1894.	1894	1904
Herron, A. M., Charlotte, R. F. D..... Med. Coll., S. C., 1882.	....	1904
Hunter, Lester W., Sardis..... Bellevue Med. Coll., 1875.	1880	1880
Irwin, John R., Charlotte..... Univ. Md., 1879.	1882	1882
King, Parks M., Charlotte..... Univ. & Bellevue, N. Y., 1902.	1902	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Knox, John, Ranaleburg	....	1904
Littlejohn, R. N., Charlotte Univ. Md., 1903.	1903	1904
*Mason, R. E., Charlotte Univ. Ga., 1900.	1903	1904
McLaughlin, C. S., Charlotte Univ., 1896.	1896	1903
McManaway, C. G., Charlotte		
Meisenheimer, C. S., Charlotte Univ. N. Y., 1882.	1882	1882
*Montgomery, John C., Charlotte Univ. N. Y., 1891.	1891	1895
Moss, W. H., Charlotte		
Munroe, H. S., Charlotte N. C. Med. Coll., 1902.	1902	1904
*Munroe, J. P., Davidson Univ. Va., 1885.	1886	1890
Nisbet, W. O., Charlotte Med. Coll., S. C., 1889.	1889	1899
O'Donoghue, Dennis, Charlotte Med. Coll. Ala., 1874.	....	1887
Pharr, W. W., Newells P. & S. Balto., 1881.	1885	1885
*Pressly, George W., Charlotte Jeff. Med. Coll., 1892.	1895	1896
*Register, E. C., Charlotte Univ. N. Y., 1885.	1885	1887
Reid, Thos. N., Matthews Univ. N. Y., 1891.	1891	1904
Russell, E. Reid, Charlotte Univ. Md., 1895.	1895	1898
Stephenson, C. B., Charlotte Tulane Univ., La., 1891.	1898	1904
*Strong, C. M., Charlotte Univ. Md., 1888.	1889	1898
*Wakefield, W. H., Charlotte Hosp. Coll. Med., Ky., 1890.	1891	1893
Walker, C. E., Charlotte Univ. Md., 1891.	1891	1894
*Whisnant, A. M., Charlotte P. & S. Balto., 1893.	1893	1894
Winchester, F. M., Charlotte Jeff. Med. Coll., 1883.	1887	1904
Wilder, H. M., Charlotte Univ. N. Y., 1872.	1874	1904
Woodley, W. T., Charlotte Med. Coll., Va., 1893.	....	1904

MOORE COUNTY SOCIETY.

President, W. A. Monroe.....Sanford.
*Secretary, Gilbert McLeod .....Carthage.

Members and Address.	*Licensed.*	*Joined State Society.*
Achorn, J. Warren, Boston, Mass..... Maine Med. Coll., 1887.	1899	1899
Currie, D. A. B., Curriesville.....	....	1904
*Ferguson, K. M., Southern Pines..... P. & S., Balto., 1882.	1883	1904
Gladmon, Edwin, Southern Pines..... National Univ., Washington, D. C., 1890.	1899	1902
*Gilmore, W. D., Cameron ..... Univ. N. C., 1903.	1903	1904
*High, Louis F., Southern Pines..... P. & S., Balto., 1891.	1891	1904
Hoyle, H. B., Jonesboro..... N. C. Med. Coll., 1896.	1896	1904
*McIver, Lynn, Sanford ..... Univ. Ky., 1901.	1902	1903
*McLeod, A. H., Aberdeen..... Balto. Med. Coll., 1896.	1896	1904
*McLeod, Gilbert, Carthage ..... Univ. Md., 1882.	1885	1904
Monroe, A. J., Jonesboro ..... Univ. N. Y., 1858.	....	1904
*Monroe, W. A., Sanford ..... Univ. Md., 1886.	1886	1888
*Palmer, R. W., Gulf ..... Louisville Med. Coll., 1890.	1891	1891
Roberson, R. M., Cumnock..... Univ. Coll. Med., 1899.	1899	1904
Shields, H. B., Carthage..... Atlanta Med. Coll., 1887.	1887	1904
Snipes, E. P., Jonesboro..... Vanderbilt Univ., 1890.	....	1890
*Street,M. E., Glendon..... P. & S., Balto., 1893.	1893	1902
Swett, W. P., Southern Pines..... Univ. Vermont, 1876.	....	1901
Williams, H. C., Sanford ..... P. & S., Balto., 1882.	1884	1893

MONTGOMERY COUNTY SOCIETY.

President, F. E. Asbury.....Asbury.
Secretary, C. B. Ingram.....Mount Gilead.

Allen, ..., Star.....	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Asbury, F. E., Asbury Med. Coll. S. C., 1876.	....	1896
Blair, M. P., Troy Med. Coll. Va., 1895.	1895	1904
Dowd, J. A., Biscoe N. C. Med. Coll., 1902.	....	1904
Ingram, C. B., Mount Gilead Jeff. Med. Coll., 1886.	1886	1892
Shamberger, J. B., Star Univ. Md., 1890.	1890	1892
Thompson, F. A., Troy Med. Coll. Indiana, 1895.	1895	1904

NASH COUNTY SOCIETY.

President, J. T. Strickland.....Nashville.
*Secretary, Robert B. Miller.....Rocky Mount.

*Battle, Jas. P., Nashville Univ. Md., 1888.	1889	1904
Brantley, C. H., Finch P. & S., Balto., 1887.	1894	1904
*Brantley, Hassell, Spring Hope Univ. Md., 1888.	1888	1901
*Marriott, H. B., Battleboro Univ. Md., 1883.	1883	1904
Matthews, T. A., Castalia Univ. Md., 1891.	1891	1895
*Miller, Robt. B., Rocky Mount Med. Coll. Va., 1898.	1900	1902
Phillips, Jas. B., Spring Hope Univ. Md., 1903.	1904	1904
Strickland, J. T., Nashville Univ. Md., 1890.	1890	1904
Whitehead, J. P., Rocky Mount Univ. Md., 1899.	1899	1899
*Whitehead, W. H., Rocky Mount Univ. Md., 1870.	1875	1875

NEW HANOVER COUNTY SOCIETY.

President, W. J. H. Bellamy.....Wilmington.
Secretary, E. J. Wood.....Wilmington.

Anders, W. K., Wilmington Univ. Philadelphia, Pa., 1870.	1880	1904
Bell, Charles D., Wilmington Univ. Md., 1883.	....	1904
Bellamy, W. J. H., Wilmington Univ. N. Y., 1868.	....	1870

Members and Address.	*Licensed.*	*Joined State Society.*
Bellamy, R. H., Wilmington Jeff. Med. Coll., 1902.	1902	1902
Bullock, D. W., Wilmington Univ. Md., 1873.	1875	1875
Burbank, T. S., Wilmington Bellevue Med. Coll., 1886.	1880	1904
Collier, G. K., Sonyea, N. Y. P. & S., Balto., 1900.	1902	1902
Galloway, W. C., Wilmington Wash. Univ. of Md., 1874.	1880	1880
Green, Thos. M., Wilmington Univ. Md., 1901.	1901	1904
Hall, Wright, Wilmington Non-graduate P. & S., Balto.	....	1904
Harris, A. H., Wilmington Medico-Chi. Coll., Pa., 1893.	1892	1904
Harper, Chas. T., Wilmington Univ. Md., 1894.	1893	1904
*Honnett, J. H., Wilmington P. & S., N. Y., 1900.	1901	1904
Koonce, S. E., Wilmington P. & S., Balto., 1896.	1896	1900
McDonald, A. D., Wilmington Wash. Univ. of Md., 1877.	1877	1879
Lane, W. W., Wilmington Univ. N. Y., 1855.	....	1870
Love, L. H., Wilmington P. & S., N. Y., 1898.	1899	1904
Love, Wm. J., Wilmington Med. Coll. of S. C., 1861.	1861	1870
McMillan, W. D., Wilmington Univ. Md., 1868.	....	1904
*Russell, F. H., Wilmington Univ. Md., 1893.	1893	1895
Schonwald, Jno. T., Wilmington Long Island Med. Coll., 1879.	1880	1904
Thomas, Geo. G., Wilmington Univ. Md., 1871.	1871	1871
Thomas, Pride J., Wilmington Univ. Md., 1902.	1902	1902
Wessell, John C., Wilmington Univ. Md., 1900.	1900	1900
Wood, Ed. Jenner, Wilmington Univ. Pa., 1902.	1903	1903

NORTHAMPTON COUNTY SOCIETY.

President, A. J. Ellis.....Garysburg.
Secretary, R. P. Morehead.....Lasker.

*Bolton, Mayland, Rich Square Jeff. Med. Coll., 1885.	1885	1885

Members and Address.	*Licensed.*	*Joined State Society.*
*Coppedge, N. P., Margaretsville N. C. Med. Coll., 1903.	1903	1903
Ellis, A. J., Garysburg Univ. Pa., 1858.	....	1904
*Joyner, R. W., Woodland	....	1904
*Lewis, H. W., Jackson Univ. N. Y., 1877.	....	1887
Morehead, R. P., Lasker P. & S., Balto., 1895.	1895	1900
Robinson, W. A., Garysburg Univ. Coll. Med., Va., 1900.	1903	1904
*Stancill, R. H., Margaretsville Med. Coll. Va., 1865.	....	1887
Stephenson, M. R., Seaboard Univ. Md., 1881.	....	1904
Valentine, Thos., Gaston	....	1904

ONSLOW COUNTY SOCIETY.

President, W. J. Montford.....Ward's Mills.
Secretary, E. L. Cox.....Jacksonville.

Blount, F. H., Swansboro	....	1904
Cox, E. L., Jacksonville Univ. Md., 1889.	1889	1892
Dudley, G. J., Sneads Ferry Univ. Md., 1898.	....	1904
Montford, W. J., Wards Mills Jeff. Med. Coll., 1857.	....	1904
*Nicholson, J. L., Richlands Univ. N. Y., 1875.	1880	1880
Thompson, Cyrus, Jacksonville Tulane Univ., La.	....	1904

ORANGE COUNTY SOCIETY.

President, I. H. Manning.....Chapel Hill.
*Secretary, C. D. Jones.....Hillsboro.

*Gattis, Robert, Chapel Hill Univ. Md., 1888.	1888	1904
Hester, J. R., Prospect Hill Univ. Tenn.	....	1894
*Hughes, C. M., Cedar Grove Atlanta Med. Coll., 1897.	1901	1904
*Jones, C. D., Hillsboro Vanderbilt Univ., 1887.	1891	1901

Members and Address.	*Licensed.*	*Joined State Society.*
Jordan, A. C., Caldwell Institute..... P. & S., Balto., 1881.	1881	1904
Manning, I. H., Chapel Hill..... Long Island Med. Coll., 1887.	1899	1901
Mangum, C. S., Chapel Hill..... Jeff. Med. Coll., 1894.	1896	1898
*Murphy, W. E., Carr.....	....	1904
*Parris, D. C., Hillsboro..... Atlanta Med. Coll., 1882.	1885	1887
*Whitehead, R. H., Chapel Hill ..... Univ. Va., 1888.	1889	1891

PAMLICO COUNTY SOCIETY.

*President, Geo. S. Attmore.....Stonewall.
*Secretary, H. P. Underhill.....Bayboro.

*Attmore, Geo. S., Stonewall..... Wash. Univ., Md., 1870.	1870	1904
*Daniels, O. C., Oriental..... Med. Coll. Va., 1903.	1903	1904
*Underhill, H. P., Bayboro..... Med. Coll. Va., 1901.	1901	1904

PASQUOTANK-CAMDEN-DARE COUNTY SOCIETY.

President, W. J. Lumsden.....Elizabeth City.
Secretary, H. D. Walker.....Elizabeth City.

Fearing, I., Elizabeth City..... P. & S., Balto., 1896.	1896	1904
Fearing, W. B., Manteo..... Univ. Md., 1881.	....	1904
Fearing, Zenos, Elizabeth City..... Med. Coll Va., 1901.	1901	1904
*Ferrebee, C. G., Shiloh..... Med. Coll Va., 1903.	1904	1904
Griggs, J. B., Elizabeth City..... Univ. Md., 1892.	1892	1904
Griggs, W. W., Elizabeth City..... Med. Coll. Va., 1863.	....	1904
Lumsden, W. J., Elizabeth City..... Univ. Md., 1869.	....	1888
McMullan, Oscar, Elizabeth City..... Univ. Va., 1880.	....	1889
Sawyer, C. J., Elizabeth City..... P. & S., Balto., 1895.	1895	1897
Sawyer, C. W., Elizabeth City..... Univ. Md., 1886.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Walker, H. D., Elizabeth City Univ. Md., 1902.	1902	1902
Wood, J. E., Elizabeth City Wash. Univ., Md., 1869.	....	1904

PENDER COUNTY SOCIETY.

President, R. J. Williams.....Rocky Point.
Secretary, W. H. Crowell.....Burgaw.

Alexander, L. L., Top Sail Sound Univ. N. Y., 1869.	....	1904
Crowell, W. H., Burgaw Univ. Md., 1895.	1895	1896
*Lucas, Geo. F., Currie Univ. N. Y., 1870.	....	1904
Williams, R. J., Rocky Point Jeff. Med. Coll., 1893.	1893	1904

PERQUIMANS COUNTY SOCIETY.

President, W. M. Riddick.....Hertford.
Secretary, R. W. Smith.....Hertford.

*McMullan, Thos. S., Hertford Univ. Va., 1888.	1889	1892
Riddick, T. M., Woodville P. & S., Balto., 1893.	1893	1904
Riddick, W. M., Hertford Univ. Pa., 1856.	....	1904
Smith, R. W., Hertford Univ. Md., 1892.	1892	1904
Winslow, C. C., Winfall Univ. Md., 1889.	....	1904

PERSON COUNTY SOCIETY.

*President, C. G. Nichols.....Roxboro.
*Secretary, J. A. Wise.....Roxboro.

*Baynes, R. S., Gordonton P. & S., Balto., 1881.	1881	1904
*Boyles, A. C., Mount Tirzah	....	1904
*Nichols, C. G., Roxboro Bellevue Med. Coll.	1885	1891
Schaub, A. P., Roxboro Balto. Med. Coll., 1898.	1898	1898
*Swann, J. F., Cunningham P. & S., Balto., 1896.	1896	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Teague, R. J., Roxboro Univ. Md., 1890.	1890	1898
*Wise, J. A., Roxboro P. & S., Balto., 1886.	1885	1904

PITT COUNTY SOCIETY.

President, Jenness Morrill.....Falkland.
*Secretary, Chas. O'Hagan Laughinghouse .....Greenville.

*Bagwell, W. H., Greenville P. & S., Balto., 1883.	1885	1887
Blount, Chas. Ayden, R. F. D. Southern Med. Coll., Ga., 1885.	....	1904
Brown, Zeno, Greenville Bellevue Med. Coll., 1883.	1885	1885
Cox, B. T., Winterville Univ. Md., 1888.	1888	1888
*Dawson, W. W., Grifton Univ. Md. 1897.	1897	1900
*Dixon, Joseph, Ayden Med. Coll. Va., 1894.	1893	1895
Fountain, Wm., Greenville Univ. Coll. Med., Va., 1898.	1899	1899
Grimes, R. J., Bethel Non-graduate Univ. Pa., 1876.	....	1904
James, F. C., Bethel Columbian Univ., D. C., 1859.	....	1904
*Jones, C. M., Grimesland Univ. Md., 1892.	1892	1895
Joyner, C. C., Farmville Jeff. Med. Coll., 1899.	1899	1904
*Laughinghouse, Chas. O'H., Greenville Univ. Pa., 1893.	1893	1894
*Morrill, David S., Farmville Balto. Med. Coll., 1897.	1897	1904
Morrill, Jenness, Falkland Univ. Md., 1888.	1888	1904
*Moye, E. A., Jr., Greenville Univ. Va., 1895.	1895	1897
*Nobles, J. F., Greenville Jeff. Med. Coll., 1899.	1899	1902
Ricks, L. E., Shelmurdine Med. Coll. Va., 1896.	1896	1898
Skinner, Lewis C., Ayden Univ. Md., 1901.	1901	1902
*Thigpen, G. F., Bethel Univ. Md., 1903.	1903	1904
Whitfield, W. C., Quinnerly Univ. Md., 1884.	....	1904

RANDOLPH COUNTY SOCIETY.

President, Samuel A. Henly.....Ashboro.
Secretary, C. E. Hubbard.....Worthville.

Members and Address.	*Licensed.*	*Joined State Society.*
Bulla, J. D., Maud..... Attended Coll. P. & S., Balto., 1888.	....	1904
Fox, Thos. I., Franklinsville..... Vanderbilt Univ., 1894.	1899	1904
Fox, L. M., Ramseur..... Vanderbilt University.	....	1904
Fox, D. L., Randleman..... Vanderbilt University, 1894.	1899	1904
Henly, Samuel A., Ashboro..... Attended Jeff. Med. Coll., 1861.	....	1888
Hubbard, C. C., Worthville..... Jeff. Med. Coll., 1888.	1890	1904
*Lewis, C. H., Farmer..... Jeff. Med. Coll., 1878.	....	1904
Moore, W. J., Ashboro..... P. & S., Balto., 1892.	1893	1901
McFadyen, Paul R., Randleman..... Med. Coll. Va., 1901.	1901	1904
Redding, A. H., Cedar Falls..... P. & S., Balto., 1887.	....	1904
*Summers, W. J., Randleman..... Univ. Tenn., 1893.	1894	1904

RICHMOND COUNTY SOCIETY.

President, J. M. Stansil.....Rockingham.
*Secretary, A. C. Everett.....Pegues.

Brown, G. W., Covington..... Ky. School Med., 1898.	1900	1904
*Everett, A. C., Pegues..... Univ. Md., 1897.	1897	1903
Fowlkes, J. I., Hamlet..... P. & S., Atlanta, 1903.	1903	1903
Garrett, F. J., Roberdell..... Univ. Md., 1889.	1887	1904
Hiatt, J. T., Ellerbee..... P. & S., Atlanta, 1901	1901	1904
Hunter, N. C., Rockingham..... Med.-Chirurg., Philadelphia, 1897.	1899	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Kinsman, H. F., Hamlet Univ. Vermont, 1894.	1897	1904
Ledbetter, J. M., Rockingham Vanderbilt Univ., 1894.	1894	1903
McPhail, L. D., Rockingham Univ. Md., 1900.	1900	1902
Patterson, D. N., Mangum Jeff. Med. Coll., 1854.	....	1904
Stansill, J. M., Rockingham Univ. Md., 1872.	1880	1880
Steele, W. H., Rockingham Bellevue Med. Coll., 1874.	....	1904
Webb, W. P., Cordova Med. Coll. S. C., 1897.	1897	1904
Williamson, J. H., Diggs Jeff. Med. Coll., 1859.	....	1904

ROBESON COUNTY SOCIETY.

*President, J. D. McMillan.....Maxton.
Secretary, L. R. Kirkpatrick.....Maxton.

Brown, J. B., Ashpole Med. Coll. S. C., 1858.	..	1904
Brown, J. P., Ashpole Univ. Md., 1883.	....	1904
Croom, J. D., Maxton Med. Coll. S. C., 1876.	....	1887
Dickson, A. P., Raeford Univ. N. Y., 1878.	....	1904
Evans, Wm. E., Rowland Med. Coll. Va., 1894.	1894	1904
Kirkpatrick, L. R., Maxton N. C. Med. Coll., 1902.	1902	1902
*McMillan, Ben. F., Red Springs Univ. Md., 1882.	1884	1884
*McMillan, J. D., Lumberton Jeff. Med. Coll., 1876.	1876	1876
McMillan, J. L., Red Springs Univ. Md., 1881.	1881	1902
Norment, W. B., Lumberton Univ. Md., 1893.	1893	1904
Norment, T. A., Jr., Rowland N. C. Med. Coll., 1894.	1893	1904
Northrup, T. L., St. Pauls Univ. Md., 1897.	1897	1903
*Pope, H. T., Lumberton N. C. Med. Coll., 1894.	1893	1902

Members and Address.	*Licensed.*	*Joined State Society.*
Reedy, Howard, Rowland..... Med. Coll. S. C., 1884.	....	1904
Rozier, R. G., Lumberton..... Univ. Md., 1899.	1899	1904
Rozier, S. B., Lumberton, R. F. D. ..... Med. Coll. Va., 1855.	....	1904
Stamps, Thomas, Lumber Bridge..... Univ. Louisville, 1888.	1888	1888
Stephens, Wm. F., Ashpole..... Tenn. Med. Coll., 1901.	1898	1904

ROCKINGHAM COUNTY SOCIETY.

*President, C. B. McAnally.....Madison.
*Secretary, G. M. Ivie.....Leaksville.

*Brooks, E. H., Reidsville..... Balto. Med. Coll., 1894.	1895	1904
Ellington, Sam, Wentworth.....	....	1904
*Ivie, G. M., Leaksville..... Balto. Med. Coll., 1893.	1893	1894
Martin, S. L., Leaksville..... Balto. Med. Coll., 1892.	1892	1904
Matherson, R. C., Madison..... P. & S., Balto., 1891.	1891	1904
*McAnally, Chas. B., Madison..... Univ. N. Y., 1887.	1887	1896
Stewart, J. T., Pleasantville.....	1898	1898
*Thompson, Hugh R., Reidsville ..... N. C. Med. Coll., 1904.	1904	1904
Tucker, F. P., Ruffin..... P. & S., Balto., 1882.	....	1904
Wharton, C. R., Ruffin..... Med. Coll. Va., 1897.	1897	1904
*Williams, J. A., Reidsville..... Univ. Va., 1898.	1898	1898

ROWAN COUNTY SOCIETY.

President, J. Stevens Brown.....Salisbury.
Secretary, I. Henry Foust.....Salisbury.

*Brawley, R. V., Salisbury..... Univ. Coll. Med., Va., 1900.	1900	1904
Brown, Geo. A., Bear Poplar..... Univ. Coll. Med., Va., 1897.	1897	1898
Brown, J. Stevens, Salisbury..... N. West. Univ. of Ill., 1893.	1894	1895

Members and Address.	*Licensed.*	*Joined State Society.*
Caldwell, J. A., Salisbury Univ. Pa., 1854.	....	1904
Chenault, W. F., Cleveland Univ. Md., 1888.	1888	1891
Councill, Jeff. B., Salisbury P. & S., Balto., 1885.	1885	1904
Crump, W. L., Salisbury Jeff. Med. Coll., 1879.	1881	1904
Dorsett, E. Rose, Salisbury Jeff. Med. Coll., 1869.	....	1904
Flippen, J. Meigs, Salisbury P. & S., Balto., 1884.	....	1893
Foust, I. Henry, Salisbury Vanderbilt Univ., 1899.	1898	1904
Gaither, J. B., China Grove P. & S., Balto., 1869.	....	1904
*Goodman, A. B., Crescent N. C. Med. Col., 1898.	1897	1904
Henderson, A. G., Woodleaf Jeff. Med. Coll., 1861.	....	1904
Heathman, J. D., Woodleaf Univ. Md., third course, 1899.	1899	1904
Heilig, H. G., Salisbury Univ. Md., 1899.	1899	1904
*McKenzie, W. W., Salisbury Jeff. Med. Coll., 1893.	1893	1894
Monk, H. L., Spencer Med. Coll. Va., 1897.	1899	1903
Peeler, J. H., Woodside Univ. Coll. Med., Va., 1899.	1899	1904
*Poole, C. M., Craven P. & S., Balto., 1880.	1880	1880
Poole, G. M. Van, Craven (U. S. Army) Univ. Md., 1899.	1899	1899
Ramseur, G. A., China Grove Jeff. Med. Coll., 1880.	....	1898
Shimpock, R. A., Gold Hill Long Island Hosp. Coll. Med., 1860.	....	1904
Smoot, M. L., Salisbury Univ. Coll. Med., Va., 1903.	1903	1904
Summerell, E. M., Mill Bridge Univ. Pa., 1883.	1883	1883
*Stokes, J. E., Salisbury Univ. Md., 1892.	1900	1901
Trantham, H. T., Salisbury Univ. N. Y., 1875.	1878	1879
West, R. M., Salisbury Med. Coll. Va., 1900.	1900	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Whitehead, John, Salisbury Univ. Pa., 1880.	1880	1880
Withers, Banks, Enochsville Univ. Md., 1896.	1896	1904
Young, J. W., Spencer Univ. Md., 1898.	1898	1904

RUTHERFORD COUNTY SOCIETY.

President, T. B. Twitty.....Rutherfordton.
Secretary, E. B. Harris.....Rutherfordton.

Doster, T. L., Ellenboro	....	1904
Hamrick, T. G., Caroleen P. & S., Balto., 1895.	1895	1904
Harris, E. B., Rutherfordton P. & S., Balto.	....	1904
Harrell, L. B., Caroleen U. S. Grant Univ., Tenn.	....	1904
Hicks, Romeo, Henrietta Southern Med. Coll., Ga., 1888.	....	1899
Hicks, O., Caroleen Med. Coll. Va.	....	1904
*Jonas, J. F., Thermal City Balto. Med. Coll., 1903.	1903	1903
Lovelace, T. B., Henrietta P. & S., Balto., 1883.	....	1904
Thompson, W. A., Rutherfordton P. & S., Balto.	....	1904
Thompson, J. B., Cliffdale Coll. P. & S., Balto., 1898.	1898	1904
Twitty, T. B., Rutherfordton Univ. N. Y., one year, 1868.	....	1904
Wiseman, C. B., Henrietta P. & S., Balto., 1902.	1902	1902
Young, G. E., Forest City One course Univ. Pa., 1859.	1885	1904

SAMPSON COUNTY SOCIETY.

President, R. E. Lee.....Clinton.
*Secretary, G. L. Sikes.....Salemburg.

Cooper, F. J., Roseboro P. & S., Balto., 1884.	1885	1904
Holliday, R. H., Clinton Wash. Univ., Md., 1868.	....	1904
*Holmes, F. H., Clinton Univ. Md., 1895.	1895	1896

Members and Address.	*Licensed.*	*Joined State Society.*
*Kerr, C. S., Kerr.... Univ. Md., 1869.	....	1904
Lee, A. M., Clinton.... Med. Coll. Va., 1862.	....	1904
Lee, R. E., Clinton.... Univ. Md., 1896.	1896	1900
*Matthews, J. O., Taylor's Bridge.... Univ. Coll. Med. Va., 1897.	1897	1902
*Sikes, G. L., Salemburg.... Univ. Coll. Med. Va., 1900.	1900	1904
Sloan, Henry, Ingold.... Med. Coll. S. C., 1881.	1885	1902
Stevens, J. A., Clinton.... Jeff. Med. Coll., 1883.	1883	1883
*Wilson, R. B., Newton Grove.... Ky. School Med., 1889.	1890	1904

SCOTLAND COUNTY SOCIETY.

President, D. M. Prince....Laurinburg.
*Secretary, A. W. Hamer....Laurinburg.

Blue, K. A., Laurinburg.... Univ. Md., 1890.	1890	1892
Everington, Geo. D., Laurinburg.... N. C. Med. Coll., 1899.	1898	1898
*Hamer, A. W., Laurinburg.... Med. Coll. S. C., 1858.	....	1904
*John, Peter, Laurinburg .... Univ. Md., 1897.	1897	1904
McLean, Neil, Gibson.... Univ. Md., 1883.	1883	1888
Pate, George, Rowland .... Med. Coll. S. C., 1900.	1900	1904
Pate, W. T., Gibson.... P. & S., Balto., 1885.	1885	1885
Prince, D. M., Laurinburg.... Med. Coll. S. C., 1871.	1879	1879
Shaw, Daniel, Fontcol.... Jeff. Med. Coll., 1853.	....	1904
Shaw, Wm. G., Fontcol.... P. &. S., Balto., 1892.	1895	1904

STANLY COUNTY SOCIETY.

President, T. A. Hathcock....Norwood.
Secretary, J. M. Lilly....Norwood.

Anderson, J. N., Albemarle.... Univ. Md., 1895.	1895	1904
Campbell, J. I., Norwood.... Non-graduate.	1898	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Hathcock, T. A., Norwood Univ. Md., 1893.	1893	1904
Hill, W. I., Albemarle Univ. Md., 1897.	1897	1904
King, O. D., Albemarle Long Island Med. Coll., 1887.	1887	1887
Lilly, J. M., Norwood Univ. Coll. Med. Va., 1903.	1903	1904
Whitley, D. P., Millingpost Univ. Md., 1889.	1890	1898
Whitley, V. A., Albemarle Univ. Md., 1884.	1884	1904

STOKES COUNTY SOCIETY.

President, A. G. Jones.....Walnut Cove.
Secretary, Elias Fulp .....Fulp.

Ellington, J. H., Sandy Ridge P. & S., Balto., 1872.	....	1904
Fulp, Elias, Fulp Univ. N., 1882.	....	1896
*Hill, L. H., Germanton Jeff. Med. Coll., 1861.	1877	1877
Jones, A. G., Walnut Cove Univ. N. Y.	....	1904
Leak, J. J., Dan River Univ. Coll. Med. Va., 1901.	....	1904
McCanless, W. L., Danbury Univ. N. Y., 1892.	1893	1904
McCanless, W. V., Danbury P. & S., Balto., 1888.	....	1904
Moir, S. A., Francisco P. & S., Balto., 1888.	....	1904
*Moore, W. B., Smith P. & S., Balto., 1893.	1893	1904
Neal, J. W., Meadows P. & S., Balto., 1889.	....	1904
Phillips, M. D., Dalton Univ. N. Y., 1881.	1881	1904
Slate, J. S., Mizpah Non-graduate N. C. Med. Coll.	1899	1904
Slate, J. W., Mizpah Non-graduate N. C. Med. Coll.	1899	1904
Slate, W. C., Capella Univ. Tenn., 1903.	1903	1904
*Smith, J. T., Westfield Jeff. Med. Coll., 1899.	1899	1904
Withers, W. W., Walnut Cove Univ. Nashville, Tenn., 1861.	....	1904

SURRY COUNTY SOCIETY.

*President, J. B. Smith.....Pilot Mountain.
Secretary, E. M. Hollingsworth.....Mt. Airy.

Members and Address.	*Licensed.*	*Joined State So.*
Allred, E. W., Mount Airy..... Jeff. Med. Coll., 1877.	....	1904
Ashby, T. B., Mount Airy..... Coll. P. & S., Balto., 1885.	1885	1896
Flippen, S. T., Siloam..... N. C. Med. Coll., 1898.	1898	1898
*Flippen, R. E. L., Pilot Mountain..... Balto. Med. Coll., 1897.	1897	1901
Folger, W. C., Dobson..... Barnes' Med. Coll., Mo., 1898.	1892	1904
Hollingsworth, Ed. M., Mt. Airy..... P. & S., Balto., 1886.	1886	1904
Hollingsworth, J. M., Mt. Airy..... P. & S., Balto., 1886.	1886	1904
Hollingsworth, R. E., Mt. Airy..... Univ. Coll. Med. Va., 1898.	1899	1904
Mosely, C. W., Elkin..... Balto. Med. Coll., 1893.	1893	1896
Reece, J. M., Elkin..... P. & S., Balto., 1886.	....	1904
Ring, J. W., Elkin..... P. & S., Balto., 1880.	....	1904
*Smith, J. B., Pilot Mountain..... P. & S., Balto., 1885.	....	1896
Taylor, W. S., Mount Airy..... Jeff. Med. Coll., 1874.	....	1894
Thompson, K., Ladonia.....	....	1904
Woltz, John L., Pilot Mountain..... Southern Med. Coll., Ga., 1897.	1902	1904
Woltz, John R., Dobson.....	....	1904

SWAIN COUNTY SOCIETY.

President, J. H. Teague.....Whittier.
Secretary, Russell D. Holt.....Cherokee.

Bennett, A. M., Bryson City..... One year Louisville Med. Coll.	1885	1899
Bryson, Dan R., Bryson City..... Univ. Md., 1900.	1900	1904
Cooper, J. A., Bryson City.....	....	1904
Holt, Russell D., Cherokee..... Med. Coll. Va., 1899.	1899	1904
Teague, J. H., Whittier..... Non-graduate Jeff. Med. Coll., 1881.	1885	1904

TRANSYLVANIA COUNTY SOCIETY.

President, W. M. Lyda.....Penrose.
Secretary, Edwin S. English.....Brevard.

Members and Address.	*Licensed.*	*Joined State Society.*
Brooks, Whitfield, Toxaway ..... Columbian Univ., D. C., 1860.	....	1904
Cannon, J. A., Calvert..... Southern Med. Coll., Ga.	....	1904
*Cheatham, Goode, Sapphire ..... N. C. Med. Coll., 1895.	1895	1896
English, Edwin S., Brevard..... Univ. of South, Tenn., 1901.	1902	1904
Hunt, C. W., Brevard ..... P. & S., Balto., 1880.	1881	1904
King, M. M., Brevard..... Eclectic Med. Coll., Ga., 1880.	....	1904
Lyda, A. E., Penrose..... Tenn. Med. Coll.	....	1904
Lyda, W. M., Penrose..... P. & S., Balto.	....	1904
*Wallis, W. J., Brevard..... P. & S., Balto., 1892.	1897	1904
Young, G. W., Brevard ..... Univ. Ga. (Non-Grad.).	....	1904

UNION COUNTY SOCIETY.

President, R. Armfield.....Marshville.
Secretary, John W. Neal.....Monroe.

Armfield, R., Marshville ..... Med. Coll. Va., 1881.	....	1904
Ashcraft, J. E., Monroe..... Univ. N. Y., 1887.	1887	1888
Bailey, J. W., Bakersville..... P. & S., St. Louis, 1901.	1902	1904
Blair, J. M., Monroe ..... Louisville Med. Coll., 1887.	....	1898
Dees, W. A., Marshville ..... Univ. Ga., 1891.	1893	1904
Ewbanks, J. B., Zoah ..... Vanderbilt Univ., 1887.	....	1904
*Hunter, J. V., Waxhaw ..... Univ. Louisville, Ky., 1898.	1898	1904
Houston, H. C., Waxhaw..... Univ. Nashville, 1899.	1899	1903
Laney, Frank, Lancaster, S. C. ..... Med. Coll. Va., 1897.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Monroe, J. P., Monroe P. & S., Balto., 1901.	1901	1902
Nance, Geo. B., Monroe Jeff. Med. Coll., 1885.	1885	1904
Neal, Jno. W., Monroe Univ. N. Y., 1884.	1887	1904
Price, W. H., Wardlaw	....	1904
Stevens, S. A., Monroe Univ. Md., 1900.	1898	1904
Stewart, H. D., Monroe Univ. Md., 1898.	1898	1904
Whitley, A. D. N., Unionville Non-Grad. Univ. Md.	1897	1904

VANCE COUNTY SOCIETY.

President, R. J. Gill.....Henderson.
*Secretary, G. A. Coggeshall.....Henderson.

Alston, B. P., Epsom Univ. Md., 1868.	....	1868
Bass, H. H., Henderson Univ. Coll. Med. Va., 1899.	1899	1900
*Coggeshall, G. A., Henderson Bellevue Med. Coll., 1879.	1894	1897
*Ferebee, C. G., Kittrell Univ. Md., 1903.	1904	1904
Gill, R. J., Henderson Univ. Pa., 1867.	....	1883
*Harris, F. R., Henderson Univ. Va., 1881.	1883	1883
Judd, W. J., Henderson Wash. Univ., Mo., 1861.	....	1904
*MacAlister, William, Middleburg P. & S., Balto., 1890.	1890	1904
*Pendleton, A. S., Henderson Univ. Pa., 1895.	1898	1899
*Tucker, Jno. H., Henderson Univ. Va., 1899.	1901	1904

WAKE COUNTY SOCIETY.

*President, J. J. L. McCullers.....McCullers.
*Secretary, Harvey G. Utley.....Apex.

Banks, T. L., Raleigh, R. F. D. Univ. Pa., 1856.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Battle, K. P., Jr., Raleigh Univ. Va., 1881.	1882	1889
*Bell, G. M., Wakefield P. & S., Balto., 1880.	....	1893
*Blalock, N. M., McCullers P. & S., Balto., 1890.	1890	1904
*Boone, W. H., Morrisville N. C. Med. Coll., 1902.	1902	1904
*Buffalo, J. S., Garner Balto. Med. Coll., 1900.	1900	1904
*Burt, B. W., Enno P. & S., Balto., 1886.	1886	....
*Caveness, Z. M., Wakefield Univ. N. C., 1903.	1903	1903
*Cooke, Fred. K., Wake Forest Tulane Univ., La., 1901.	1902	1902
*Cotten, A. T., Raleigh P. & S., Balto., 1879.	....	1885
*Dixon-Carroll, E. Delia, Raleigh Woman's Med. Coll., N. Y., 1895.	1900	1900
Dowd, C. F., Willow Springs Univ. Pa., 1867.	....	1904
*Ferebee, E. B., Raleigh P. & S., Balto., 1885.	1885	1903
Fowler, M. L., Rolesville P. & S., Balto., 1881.	....	1904
*Goodwin,, A. W., Raleigh Bellevue Med. Coll., 1887.	1887	1887
*Graham, Joseph, Raleigh Univ. Pa., 1901.	1902	1902
*Harris, H. H., Wake Forest Univ. Pa., 1860.	1860	1886
Hayden, Catherine P., Raleigh Univ. Colorado, 1894.	1902	1904
*Haywood, F. J., Raleigh Bellevue Med. Coll., 1868.	....	1898
*Haywood, Hubert, Raleigh Bellevue Med. Coll., 1879.	....	1904
*Hines, P. E., Raleigh Univ. Pa., 1852.	....	1853
*Holding, S. P., Wake Forest Bellevue Med. Coll., 1897.	1897	1904
*Horton, W. C., Raleigh P. & S., Balto., 1897.	1896	1904
Jenkins, C. L., Raleigh Univ. N. Y., 1890.	1890	1892
Johnson, R. W., Apex Univ. Tenn., 1900.	1901	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Jones, A. O., Raleigh Bellevue Med. Coll., 1890.	1890	1904
*Jordan, T. M., Raleigh P. & S., Balto., 1881.	1881	1881
*Judd, J. M., Fuquay Springs Balto. Med. Coll., 1897.	1898	1901
*Knox, A. W., Raleigh Bellevue Med. Coll., 1874.	1878	1880
*Lewis, R. H., Raleigh Univ. Md., 1871.	1877	1877
Lynn, I. N., Wendell Bellevue Med. Coll., ...	....	1904
Mashburn, B. D., Eagle Rock Non-Grad. P. & S., Balto., 1875–'6.	....	1904
*Mashburn, H. H., Eagle Rock Non-Grad. P. & S., Balto., 1876.	....	1904
*MacNider, W. DeB., Raleigh Univ. N. C., 1903.	1903	1903
*McCullers, J. J. L., McCullers P. & S., Balto., 1886.	1886	1904
*McGeachey, R. S., Raleigh Bellevue Med. Coll., 1894.	1894	1895
McGee, J. W., Raleigh Univ. Pa., 1860.	1860	1885
*McGee, J. W., Jr., Raleigh Bellevue Med. Coll., 1888.	1888	1888
*McKee, James, Raleigh Bellevue Med. Coll., 1869.	1870	1870
*Perry, J. A. J., Vanteen Univ. N. Y., 1861.	....	1904
Powers, J. B., Wake Forest Long Island Med. Coll., 1878.	1885	1904
*Ray, O. L., Bangor Univ. Coll. Med., Va., 1899.	1899	1904
*Rankin, W. S., Wake Forest Univ. Md., 1901.	1901	1901
*Rogers, Jas. R., Raleigh P. & S., Balto., 1886.	1886	1904
*Royster, H. A., Raleigh Univ. Pa., 1894.	1894	1895
*Royster, W. I., Raleigh Bellevue Med. Coll., 1869.	1869	1871
*Sorrell, L. P., Flint Med. Coll. Va., 1875.	....	1904
*Templeton, J. M., Cary Balto. Med. Coll., 1882.	1882	1904
*Thompson, S. W., Falls Med. Coll. Va., 1875.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
*Tucker, H. McKee, Raleigh Univ. Md., 1899.	1899	1899
*Utley, B. S., Holly Springs P. & S., Balto., 1878.	....	1886
*Utley, H. G., Apex Univ. Md., 1894.	1901	1901

WASHINGTON COUNTY SOCIETY.

President, W. H. Hardison.....Creswell.
Secretary, J. L. Hassell.....Creswell.

Early, W. W., Plymouth Univ. Pa., 1893.	1901	1904
Hassell, J. L., Creswell P. & S., Balto., 1886.	....	1904
*Halsey, B. F., Roper Vanderbilt Univ., 1893.	1895	1900
Hardison, W. H., Creswell Wash. Univ., Md., 1870.	....	1904
Speight, J. W., Roper Ky. School Med., 1885.	1885	1904
Ward, W. H., Plymouth Univ. Md., 1881.	1886	1900

WATAUGA-MITCHELL COUNTY SOCIETY.

President, J. W. Jones.....Boone.
Secretary, McD. Little .....Horton.

Jones, J. Walter, Boone U. S. Grant Univ., 1900.	1902	1904
Little, McD., Horton	....	1904

WAYNE COUNTY SOCIETY.

President, M. E. Robinson.....Goldsboro.
Secretary, W. H. Cobb, Jr. .....Goldsboro.

*Aaron, L. P., Mount Olive Univ. Md., 1895.	1896	1897
Benton, Geo. R., Eureka Med. Coll. Va., 1901.	1901	1904
*Cobb, W. H. H., Goldsboro Univ. Pa., 1861.	1878	1878

Members and Address.	*Licensed.*	*Joined State Society.*
Cobb, W. H., Jr., Goldsboro Jeff. Med. Coll., 1889.	1889	1890
Crawford, W. B., Walter Bellevue Med. Coll., 1886.	1886	1904
Exum, W. P., Jr., Saulston Med. Coll. Va., 1901.	1902	1904
Faison, W. W., Goldsboro Jeff. Med. Coll., 1878.	1883	1904
Ginn, Theo. L., Goldsboro Med. Coll. Va., 1901.	1901	1904
Haynes, L. O., Fremont Univ. Coll. Med. Va.	1897	1904
Hill, Thomas, Goldsboro Univ. N. Y., 1854.	....	1904
Jones, W. J., Goldsboro Univ. N. Y., 1858.	....	1860
*Kennedy, J. B., Grantham Univ. Nashville, 1870.	....	1904
*Lane, W. K., Goldsboro Jeff. Med. Coll., 1902.	1902	1902
*Miller, J. F., Goldsboro Jeff. Med. Coll., 1858.	....	1873
*Powell, W. E., Goldsboro P. & S., Balto., 1882.	1885	1904
*Roberts, J. D., Mount Olive Bellevue Med. Coll., 1875.	1877	1904
*Robinson, M. E., Goldsboro Wash. Univ. Md., 1870.	....	1886
Smith, R. A., Goldsboro Vanderbilt Univ., 1879.	1882	1882
Spicer, J. D., Goldsboro Jeff. Med. Coll., 1859.	....	1904
Spicer, John, Goldsboro Bellevue Med. Coll., 1889.	1890	1904
Spicer, William, Goldsboro Bellevue Med. Coll., 1898.	1897	1904
*Steele, W. C., Mount Olive Univ. Md., 1894.	1891	1894
*Sutton, W. G., Seven Springs Jeff. Med. Coll., 1889.	1889	1896
*Turlington, W. T., Fremont P. & S., Balto., 1894.	1894	1895

WILKES COUNTY SOCIETY.

President, J. W. White.....Wilkesboro.
*Secretary, J. Q. Myers.....North Wilkesboro.

Members and Address.	*Licensed.*	*Joined State Society.*
Bryant, C. G., Roaring River.....	....	1904
*Edwards, A. D., North Wilkesboro..... N. C. Med. Coll., 1904.	1904	1904
Eller, A. J., Ready Branch..... P. & S., Balto., 1893.	1895	1904
Gilreath, F. H., North Wilkesboro..... Univ. Nashville.	1898	1898
Hamby, C. L., Dehart.....	....	1904
Horton, W. P., North Wilkesboro..... Balto. Med. Coll., 1892.	1896	1904
*Myers, J. Q., North Wilkesboro..... N. C. Med. Coll., 1904.	1904	1904
Somers, L. P., Osbornville.....	....	1904
Turner, J. M., Wilkesboro..... Univ. Louisville, Ky., 1881.	....	1904
White, J. W., Wilkesboro..... Jeff. Med. Coll., 1889.	1889	1890

WILSON COUNTY SOCIETY.

President, C. E. Moore.....Wilson.
*Secretary, Isaac W. Lamm.....Lucama.

*Anderson, Albert, Wilson ..... Univ. Va., 1888.	1889	1889
Anderson, Nathan, Wilson ..... Eclectic Med. Institute, Cincinnati, 1873.	....	1904
Anderson, W. S., Wilson..... Balto. Med. Coll., 1869.	....	1899
Barnes, B. F., Saratoga..... Univ. Md., 1902.	1902	1902
Brooks, Thos. L., Black Creek..... Univ. Coll. Med., 1899.	1899	1899
Chears, B., Elm City	....	1904
*Crocker, Wm. D., Lucama ..... Louisville Med. Coll., 1887.	1896	1904
Crocker, S. H., Statonsburg..... Ky. School Med., 1893.	1894	1899
*Dickenson, E. T., Wilson..... Med. Coll. Va., 1895.	1895	1900
Herring, B. S., Wilson..... Univ. Mich., 1900.	1901	1901

Members and Address.	*Licensed.*	*Joined State Society.*
Hoover, H. R., Black Creek Balto. Med. Coll., 1891.	1892	1904
*Lamm, Isaac W., Lucama Univ. Coll. Med. Va., 1899.	1899	1900
Moore, C. E., Wilson Bellevue Med. Coll., 1875.	1875	1875

YADKIN COUNTY SOCIETY.

*President, Jno. T. Burrus.....High Point.
Secretary, B. W. Fassett .....Cross Roads.

*Burrus, John T., High Point N. C. Med. Coll., 1898.	1897	1898
Clingman, J. J., Huntsville Attended P. & S., Balto. 1876.	....	1904
Fassett, B. W., Cross Roads Balto. Med. Coll., 1898.	1899	1904
Hutchins, E. M., Boonville N. C. Med. Coll.	1896	1904
*Leak, W. G., East Bend N. C. Med. Coll., 1900.	1899	1904
*Matthews, M. L., East Bend Univ. N. C., 1903.	1903	1904
Matthews, J. M., East Bend Univ. Tenn., 1890.	....	1899
Royall, M. A., Yadkinville P. & S., Balto., 1890.	....	1904
Russell, S. L., Yadkinville Univ. Tenn., 1890.	....	1904
Shore, T. W., Boonville Univ. Coll. Med., Va., 1898.	1899	1904

YANCEY COUNTY SOCIETY.

President, J. L. Ray.....Burnsville.
Secretary, C. P. Edwards.....Bald Mountain.

Austin, W. M., Burnsville Non-Graduate.	....	1904
Edwards, C. P., Bald Mountain Tenn. Med. Coll., 1900.	1903	1903
Ray, J. L., Burnsville P. & S., Balto., 1887.	1887	1890

BERTIE COUNTY SOCIETY.

(List came too late to go in alphabetically.)

President, Wayland Mitchell ..... Lewiston.
Secretary, E. B. Horton ..... Aulander.

Members and Address.	*Licensed.*	*Joined State Society*
Harrell, W. J., Aulander..... Coll. P. & S., Balto.	....	1892
Horton, E. H., Aulander..... Coll. P. & S., Balto., 1884.	....	1904
Jenkins, P. C., Robodel..... Bellevue Med. Coll., 1873.	....	1904
Mitchell, Wayland, Lewiston ..... Univ. Md., 1895.	1896	1904
Ruffin, J. B., Powellsville	....	1904
Sawyer, C. J., Windsor..... Coll. P. & S., Balto., 1895.	1895	1897

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

Name.	Address.	Name.	Address.
*Peter E. Hines	Raleigh.	*Francis Dufly	New Bern.
*H. T. Bahnson	Salem	*P. L. Murphy	Morganton.
W. W. Lane	Wilmington.	*A. G. Carr	Durham.
W. J. Love	Wilmington.	*J. F. Miller	Goldsboro.
*James McKee	Raleigh.	J. F. Shaffner	Salem.
*Willis Alston	Littleton.	E. P. Alston	Henderson.
W. J. H. Bellamy	Wilmington.	W. J. Jones	Goldsboro.
*W. I. Royster	Raleigh.	*F. J. Haywood	Raleigh.
George G. Thomas	Wilmington.	P. A. Barrier	Mount Pleasant.

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

Name.	Address.	Name.	Address.
L. McL. Tiffany	Baltimore, Md.	W. T. Howard	Baltimore, Md.
W. W. Keen	Philadelphia, Pa.	W. L. Robinson	Danville, Va.
*J. Allison Hodges	Richmond, Va.	J. N. McCormack	Bowling Green, Ky.
*R. L. Payne	Norfolk, Va.	*J. C. Walton	Danville, Va.

December 1st, 1904. Total membership Medical Society of the State of North Carolina including eight honorary members, 1,059. Of the 97 counties of the State the physicians of 89 counties are organized in county societies in affiliation with and component branches of the State Medical Society. At this date only the following eight remain unorganized: Alleghany, Bertie, Chatham, Chowan, Hyde, Jones, Tyrrell and Warren.

*Registered as present at Raleigh meeting, May, 1904.

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